

# Railway Age Gazette

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A CORRESPONDENT, "W.," in another column, describes some annoyances in traveling, of a kind with which everyone is familiar. Being familiar and, we may say, hoary with age, why, it may be asked, do we print these criticisms? Well, for one reason, because they are real and just grievances. Being old does not outlaw them. Again, the letter bears strong internal evidence of a friendly, reasonable and discriminating spirit. People friendly to the railways are far too ready to let their friendliness suppress a righteous indignation which ought to be voiced. Therefore, we give prominence to the statement of this public-spirited man who is willing to do his part toward abating nuisances. Why is it that such slipshod practices continue? No one will accuse the *Railway Age Gazette* of being an apologist for poor railway service, so we may for a moment ask whether there is any explanation. One obvious explanation (though not a defense) is that in the department store which our correspondent cites, the manager has his 5,000 employees right under his thumb, almost literally. The railway superintendent with 5,000 men has to work through miles of distance; and the distance is a real obstacle, not a mere fancy. Of probably two-thirds of his most important men, it is fair to say that each is so isolated that he must be largely his own boss. We may assume that each of these employers is trying to get the best possible service for the least possible money; but the storekeeper in a large city has the great advantage of being in an ideal labor market, all of the buyers and sellers of labor having intimate knowledge of each other; and his labor market is always overstocked. The railway officer's conditions are al-

most at the other extreme: restricted competition among applicants, 10 or 50 centers instead of one, and difficult conditions of service. By difficult conditions we mean the need of a long apprenticeship to make satisfactory trainmen, and the necessity of having conductors, brakemen and porters who will work together harmoniously and effectively. It seems quite certain that the Interborough Rapid Transit Company, for example, employing 10,000 men in New York City, gets better service out of the same grade of men than can the Great Northern Railway, a thin line 2,000 miles long. The incident of the porter crushing the hat is typical of innumerable cases, familiar to every superintendent, where the employee knows he is at fault, knows he ought to apologize, and in the great majority of cases, we may say, is at heart willing to apologize, yet for the moment is so scared by the prospect of a two-dollar damage bill that he is completely rattled and forgets common politeness. This bad habit of saying whatever seems at the moment to be justified by the barbarous law of self-preservation is found in conductors and other employees supposed to be decidedly higher in the social scale than porters. The writer encountered it the other day in a Broadway ticket office, and not from one of the five clerks, but the agent himself. Why should not the more reliable and better class of employees be assured that small damage bills, as for crushed hats, will not be deducted from their pay? Well-disposed superintendents are trying all the time to assure employees of the company's friendly feeling toward them. Why not, as an experiment, put this assurance in some such concrete form?

POSSIBLY the foregoing is based too exclusively on old-fashioned notions. It has long been our conviction that a polite, careful and courteous force of trainmen was to be secured only by having energetic and public-spirited superintendents, who would select men possessing intelligence, moral character and some measure of "good address," and, having selected good men, would by fair treatment, reasonable pay and strict discipline, do their best to secure from such men the best service within their capabilities. But an apostle of love has arisen in the Southwest, who, we must admit, may have found a better way. He enforces proper deportment by fiat. This fiat marks such a refreshing change from all methods heretofore known that we reproduce it nearly in full. It is an official order of the Corporation Commission of Oklahoma. It reads:

PROPOSED ORDER NO. 82.

Cause No. 1071.

To All Steam and Electric Railway Companies, . . . and

To All Persons, Etc.

You are hereby notified that \* \* \* on the 16th day of November, the commission will hear any objections which may be urged against the following proposed order, rule, regulation, and requirement:

All employees of steam and electric railways or railroads, the Pullman Company, and all persons, firms, or associations regularly engaged in the transportation of persons or property, for hire, employed in the operation of any car, train, or other vehicle, of conveyance, in the state of Oklahoma, as conductor, train auditor, brakeman, motorman, porter, or otherwise, shall, at all times, extend to the public, and to each individual passenger or patron, every possible courtesy and perform every duty devolved upon him by his position, to provide comfort and convenience to the public and to all passengers and patrons. . . .

J. E. LOVE, Chairman. . . .

We had not heard of this order when we put our correspondent's letter in type, else our suggestions might have been different. "Every possible courtesy" is the golden text of this document, if we may be permitted the use of a Sunday school term. There is only one other man in the country who could have delivered such a masterstroke of executive efficiency and literary incisiveness, and his failure to think of it first must be explained by the fact that for the past month he has been engaged in making political speeches, east or west, night and day and Sunday.

THE decision of the Interstate Commerce Commission in the Morgan Grain Company case, involving rates from Ohio and Mississippi river crossings to Atlanta and Birmingham, an abstract of which is published elsewhere in this issue, definitely states that the decision rendered by the majority, and the opinion

expressed by the minority, deal only with this specific case, and are not to be taken as an indication of the attitude of the commissioners on the question of the general advances in rates now under discussion before the commission. We may assume that this is in a literal sense true, since the rates concerned were increased prior to the amendment of the Interstate Commerce Act, so that in the case under consideration the burden of proof rested on the shippers, while in the advances now asked for by the carriers a burden of proof of reasonableness is on the railways. It is nevertheless interesting to see that the two opinions, majority and minority, may well be taken as typical of the two opinions that may be held in the present rate advance question. The opinion of the majority is that the rates resulting from the advances are not unreasonable in themselves, and that it is proper and right for the commission to accept as valid the argument made by the railways that they need money to better their property, and that such betterment work is of more than enough advantage to the public to offset the comparatively slight sums that each consumer or shipper will have to pay under an advanced schedule of rates. On the other hand, the minority opinion, written by Commissioner Clements, holds that an advance in the cost of staples of 12 cents per year per capita is unjust, and then goes into a discussion of the valuation of railways, stock waterings, etc., and concludes that the rate advances are unreasonable. Commissioner Clements says: "It was said on the record that a stock had paid less than 4 per cent. for thirty years, and the query was made as to how the holder was any better off at the end of that time if his holdings had not increased in value. Without undertaking here to state my views as to what would be a reasonable percentage of profit on the value of the property or the amount of the investment therein, it may be said in answer that the holder has at least had his original investment returned and his dollar is still working for him \* \* \*." Absolutely true, and if he had had 1 per cent. interest on his investment for 100 years, he would now have had his principal returned to him and still have a dollar working for him, which would be a comfort to his heirs even if he did die of starvation.

#### SAFETY APPLIANCE STANDARDS.

THE Interstate Commerce Commission may be criticized for going into too much detail in its recent order designating the number, dimensions, location and manner of application of safety appliances. Yet while it is true that the commission has gone into far greater detail than did the previous standards of the Master Car Builders' Association, it must be admitted that the latter were more or less crude and unfinished, and it is difficult to see how they could be otherwise considering the conditions under which they were established. The M. C. B. safety appliance standards have been compared by one mechanical officer to a blanket; the various roads each tried to stretch it to cover some peculiarity of design on certain cars which they owned, with the result that it threatened to become so pulled out of shape and thin as to seriously affect its value. As an example, take the M. C. B. rule referring to the location of the brake shaft: "The brake shaft to be located on the end of the car, *preferably* to the left of the center thereof, when facing the end of the car." The I. C. C. rule reads: "The brake shaft shall be located on end of car, to the left of and not less than 17, nor more than 22 in. from the center."

It is not intended in criticizing the M. C. B. standards to reflect on the integrity or ability of the men who have been instrumental in forming them. They did the best they could do under the circumstances. With the great variety of designs used by the roads represented in the association, it was impossible to secure the adoption of standards that would put any large proportion of the members to considerable inconvenience in living up to them; and even if such standards could be adopted, there was no means of enforcing them. Considering these difficulties, the Master Car Builders' Association did good work and the standards have served their purpose admirably. The secretary of the Interstate Commerce Commission, year

after year, has expressed his belief in the work of the M. C. B. Association and has emphasized it by adopting its standards in enforcing the safety appliance law. It is not to be wondered at, however, that when the new act was adopted last April authorizing the commission to establish standards for safety appliances, it drew up a more complete and thorough set of standards than had been adopted by the M. C. B. Association. Hearings were arranged for at which both the railways and representatives of the trainmen could present any objections which they might have. The railway representatives, realizing that in previous hearings the railway interests had suffered seriously by a lack of harmony on their part, decided after the preliminary hearings to get together and act as a unit at the final hearing. This they did with some success, although their interests were so conflicting in some instances that they could not even agree among themselves. Mechanical department officers who were present at all the hearings state unreservedly that the Interstate Commerce Commission inspectors were fairer to the railways in general than some of the railways' representatives were. If the railways had got together previously and adopted a more complete set of standards than those adopted by the M. C. B. Association, there is little question but that the commission would have been glad to be relieved of the task and would have adopted them without question. This again emphasizes not only the importance but the necessity of the railways' acting as a unit in such matters.

The wisdom of providing four side handholds, one near each end on each side of the car, is open to question, as there is only one ladder on each side. The extra handhold was probably provided for the convenience of trainmen when switching in the yards, but if a man should grasp one of them in the dark, believing that there was a ladder above, he might have to hang on, if the train had gathered speed before he discovered his mistake, until he became exhausted and fell off.

The commission, realizing the great and unnecessary expense that will be placed on the railways by enforcing the application of the new standards to the present equipment, will undoubtedly extend the time for the application to such equipment indefinitely, or for the life of the cars now in service, except in cases where the violation is flagrant and proves a menace to the lives of trainmen or passengers. Many troublesome questions will undoubtedly arise, such as what should be done with cars that were placed in service after the law was passed last April, and also in case of the rebuilding or partial rebuilding of equipment in railway shops; but it is believed by those who have come in close contact with the Interstate Commerce Commission and its inspection that the railways will be inconvenienced to as small an extent as possible.

#### THE WESTERN RAILWAYS AND THE LOCOMOTIVE ENGINEERS.

THE representatives of the Brotherhood of Locomotive Engineers and the officers of the western railways, who have been negotiating at Chicago over the matter of an advance in the wages of the engineers, have been unable to agree, and on November 7 the former broke off the negotiations and announced that they would submit to a vote of their members the question of authorizing a strike. Further details regarding this matter are given in our news columns. The two important facts regarding the situation which stand out prominently are these: First, the railways offered the engineers advances in wages which would have averaged 9½ per cent. These advances would have been as large in proportion as the state and federal boards of arbitration last summer held ought to be given to the switchmen and firemen on the same roads. Second, the railway managers have been willing throughout the negotiations, and are willing now, to submit the questions involved to mediation, either by representatives of the railways and the Brotherhood of Locomotive Engineers, or by Chairman Knapp, of the Interstate Commerce Commission and Labor Commissioner Neill, or to arbitration under the Erdman act. On the other hand, Grand Chief Stone, of the Brotherhood of Locomotive Engineers, has declared that he will not submit any of

the questions involved to arbitration. These facts seem to be all that are necessary to show which side is confident that it has the more meritorious case. The attitudes of railway employees and railway managers toward arbitration have been remarkably reversed within the last few years. Formerly it was the employees who demanded arbitration and the managers who hesitated to consent to it. Now it is the managers who suggest it on every occasion when they cannot reach a settlement otherwise and the employees who run away from it. Almost every suggestion for mediation or arbitration of labor differences on railways which has been made this year has come from the railway managers.

Two of the points regarding which the managers and engineers were unable to agree were to what extent the jurisdiction of the brotherhood should be extended over the operation of gasoline motor cars and the differential that should be made between the wages of engineers on Mallet and other locomotives. The managers are willing in employing motormen to give the preference to experienced engineers who have qualified themselves for motormen, but they are not willing to make employment on motor cars and on steam locomotives interchangeable. There are various reasons for this. One is that as the operation of a steam train gives employment to more men than the operation of a motor car, it is feared that engineers on motor cars would not handle them in such a way as to get the best results from them, simply because anything that prevented them from giving good results would tend to cause steam trains to be substituted for them. As to Mallet engines, the railways are buying them for the purpose of effecting economies in operation. The main reason why their use makes possible economies is that with them a given number of employees can get over the road a very much larger train load than with less powerful engines. The operation of a Mallet engine involves somewhat more work and responsibility for the engineer than the operation of a smaller engine, and for this reason the railway managers concede that engineers on them should be paid more. They, therefore, offered them a differential of 75 cents a day; but the officers of the brotherhood insisted that engineers on Mallets be paid practically double what others receive. The evident desire to get established the principle that the wages of engineers shall be based on the amount of tonnage handled by them. But if this principle should be applied to fixing the wages of engineers, why should it not be applied to fixing the wages of conductors and firemen? Why should it not be applied so that the train despatcher will be paid more for despatching a long freight train than a short one, or a fast train than a slow one? The adoption of the principle that engineers running Mallets shall receive anything like twice as much as engineers on other engines would very seriously interfere with the economies for which these engines have been invented and introduced. It is to the public's interest that all possible economies in the cost of transportation shall be made which do not impair the service given. Therefore the railways in resisting the attempts of the brotherhood to penalize the use of large engines are protecting not only their own interests, but those of the public.

The Brotherhood of Locomotive Engineers is perhaps the finest labor organization on earth. Certainly no other has a more intelligent membership or a finer record for able leadership and wise action. For these reasons it occupies a very high place in the estimation of the public. But the Brotherhood of Locomotive Engineers cannot, any more than any other labor organization, reject an offer of a 9½ per cent advance in wages, refuse a fair offer of arbitration, and strike, without arraying public sentiment against it; and public sentiment largely determines the results of strikes. Because the members and officers of the brotherhood know this, it is a safe prediction that, no matter what the vote of the brotherhood is, there will be no strike and that ultimately either the managers and the representatives of the brotherhood will agree, or all of the questions involved will be arbitrated.

#### A FAIRLY LARGE ORDER.

**I**N its most recent order to the railways, the Interstate Commerce Commission suggests that its search for information may be for purposes other than the present inquiry into the reasonableness of rate increases. In asking for a quantity of statistics that bids fair almost to overwhelm the accounting departments of railways, the commission says that the roads are required to furnish these statistics "for use in the above entitled investigations [of advances in rates] and for the general information of this commission." (The italics are ours.) The great detail into which the commission goes in its questions, and especially the elaborate questions that are asked in regard to capitalization, suggest that the commission may want this information not only for its present inquiry, but for use in the future by the new Hadley commission on railway capitalization. The commission orders the roads to give in great detail figures for operation and maintenance in April, May, June, July, August and September of 1907, 1908, 1909 and 1910. From the care with which maintenance figures are specified, it seems that the commission intends to make a thorough investigation of the charge that the roads have been padding their expense accounts in recent months as an argument for higher rates. For instance, the railways are ordered to give for each of the months in each of the years named the number of cubic yards of ballast applied, the average cost, and the average charge to operating expense per cubic yard for transportation to point of use; this information to be subdivided into rock, gravel, cinder and slag, and other ballast. Transportation expenses are taken up in detail, and equipment is made the subject of as searching an examination as is maintenance of way. These questions apparently deal specifically with the inquiry now before the commission.

The questions in regard to capitalization would appear to go beyond the present inquiry. Companies are ordered to state in detail "for each authorization since the date of the creation of the company [italics are ours] made by its board of directors, managers or trustees for the issue of stocks or of bonds, notes, or other evidences of indebtedness maturing later than one year after the actual issue thereof." The railways are ordered to tell the par value of the securities issued and also to tell the net amount received from the sale of these securities. The detail into which the commission goes is well shown by the requirement that "the terms of all contracts, whether oral or written, made by the respondent company with bankers, brokers, syndicates and other agencies for selling or distributing the said securities, including herein a statement of all fees, commissions and other things of value paid or to be paid to such agencies for their service in such sale or distribution"; and, again, "the requirement that the gross proceeds to the respondent company of each issue of securities be classified as cash, including herein money, checks, drafts, bills of exchange and other commercial papers, payable at sight and realized on at par on demand; promissory notes realized on at par on demand or subsequently, with interest from date of issue; and book accounts realized on at par, with interest, etc."

There is an interesting point brought up by this order of the commission. In the twelfth section of the amended Interstate Commerce Act the commission is given authority to obtain from common carriers full and complete "information necessary to enable the commission to perform the duties and carry out the objects for which it was created \* \* \*; and for the purpose of this act the commission shall have power to require by subpoena the attendance and testimony of witnesses, and the production of all books, papers, tariffs, contracts, agreements and documents relating to any matter under investigation." Now, apparently, there can be no doubt that if the questions asked the roads in the recent order are all pertinent to the investigation now being made into the reasonableness of rate advances, the commission has full power to require answers to them. If, however, a court should hold that the searching questions in regard to capitalization are not all pertinent to an investigation of rate increases, the question would then be raised

as to whether the commission has power to make such an inquiry as the present one, under the general provision that it is keeping itself informed as to the manner and method in which the business of the carriers is conducted.

All of this information is to be furnished to the commission on or before December 5, 1910. On the face of it, this would look like a physical impossibility.

#### CHICAGO, BURLINGTON & QUINCY.

THE Burlington handles a great deal of coal from the Illinois mines into Chicago. In April, May and June these mines were closed because of the strike of coal miners. The consequent loss of low grade traffic, which can be moved in heavy train loads, is shown to a marked extent in the ton mileage and other traffic statistics of the Burlington in its annual report for the fiscal year ended June 30, 1910. The total ton mileage last year was 7,435,000,000, an increase of 814,000,000 ton miles over 1909. This increase is about 12 per cent., and under ordinary circumstances a road like the Burlington could handle this increase in traffic with a considerably smaller proportionate increase in car and freight train mileage. In 1910, however, the total freight car miles amounted to 637,000,000, an increase of 71,000,000, or 13 per cent., over 1909. The average train load last year was 381 tons, which is less by six tons than the 1909 train load. The average number of loaded cars per train mile was 22.44 last year and 22.69 the year before, while the average number of empty cars was 9.28 and 9.48, respectively, in those two years.

Another reason for the smaller train load and much greater car mileage is the growing demand of the public for more regular and expeditious freight service. For example, the railways are running a great many more package cars out of Chicago than formerly. There is an increase in the number of package cars every year, and also in the speed called for by their schedule. This greater movement of freight on a time schedule tends distinctly to prevent an increase in train load, since a package car running in a regular schedule must be sent out whether it is fully loaded or not.

Under these circumstances we would expect to find that the Burlington, handling less low grade traffic, was receiving a higher average rate per ton per mile, but this was not the case. In 1910 the average receipts were 7.83 mills, and in 1909, 7.89 mills. Thus the operation of the road was hampered by the change in the character of the tonnage carried, while the receipts from the greater proportion of high class tonnage did not benefit appreciably the freight earnings.

Last year the Chicago, Burlington & Quincy Railroad Co. earned from operation \$87,900,000. This compared with 1909 earnings of \$78,600,000. Operating expenses last year totaled \$63,000,000, and the year before \$54,600,000; so that after the payment of taxes, the operating income in 1910 was \$21,700,000, as against \$21,400,000 in 1909. Other income includes this year the dividends paid on Colorado & Southern stock owned by the Burlington, and is therefore much larger than in 1909. Other income amounted to \$2,500,000 in 1910. The Burlington, after paying its 8 per cent. dividend on the \$110,839,100 stock, of which \$107,612,600 is deposited under Great Northern and Northern Pacific joint bonds, had a surplus of \$4,441,618, from which it appropriated \$3,300,000 for additions and betterments.

Conducting transportation cost \$28,300,000 in 1910. This compares with transportation expenses of \$24,600,000 in 1909. Both maintenance of way and maintenance of equipment were also more expensive in 1910 than in 1909, as is evident from the table at the end of this review.

Beside the changes in character of traffic mentioned as one of the causes for higher operating costs, the weather in the territory through which the Burlington runs was so severe last winter that it materially interfered with operating efficiency. The snow was deep, and this made it necessary to reduce the average train load. It was so cold that locomotives would not

steam properly and could not haul as large a tonnage as in the previous winter.

The balance sheet, arranged in the form prescribed by the Interstate Commerce Commission, is quite different from the previous balance sheet of the Burlington, and about the only item that can be safely compared for the years 1910 and 1909 is cash on hand, which amounted last year to \$9,100,000, and in 1909 to \$15,100,000. The 1910 balance sheet shows total working assets of \$40,600,000 and working liabilities of \$12,000,000. The balance sheet also shows that the company has spent from income \$8,800,000 since June 30, 1907, for additions to property, and has reserved from income or surplus \$28,200,000 invested in sinking funds and \$4,600,000 not specifically invested.

The showing of the Burlington in 1910 was not disappointing; it simply needed explanation, and when that explanation is understood, the higher costs last year and the apparent lack of increase in operating efficiency seem to be inevitable, and, in a good many cases, temporary, excepting, presumably, the increase in wages.

The following table shows the operations in 1910 as compared with 1909:

	1910.	1909.
Average mileage operated .....	9,023	9,023
Freight revenue .....	\$58,924,537	\$52,240,921
Passenger revenue .....	22,380,306	19,585,305
Total operating revenue .....	87,869,517	75,612,629
Maint. of way and structures ..	15,725,461	12,986,773
Maintenance of equipment ..	15,057,165	13,366,415
Traffic .....	1,654,452	1,576,361
Transportation .....	28,340,052	24,554,730
Total operating expenses .....	63,010,965	54,560,998
Taxes .....	2,970,737	2,517,018
Operating income .....	21,723,534	21,376,207
Gross corporate income .....	24,247,227	22,320,054
Net corporate income .....	13,308,746	12,371,081
Dividends .....	8,867,128	8,867,128
Additions and betterments ..	3,329,006	2,237,081
Surplus .....	1,112,612	1,266,872

#### HIGH SPEED LOCOMOTIVES AT THE BERNE CONGRESS.

THE subject of high-speed locomotives in one form or another has been considered a number of times by the International Railway Congress. At the London meeting in 1895 the title of the report was Express Locomotives; at Paris in 1900 it was Locomotives for Trains Running at Very High Speeds; at Washington in 1905 it was Locomotives of Great Power; and at the meeting at Berne in June, 1910, it was The Design of Steam Locomotives for Very High Speeds. This indicates a constant and persistent interest of the railways of the world in the attainment of higher speeds in locomotive service, and a desire to know how it can best be accomplished. These reports, however, cover descriptions of passenger locomotives of the ordinary design, and there are few, if any, references to features that have been especially designed to adapt the locomotive to high speed service. Ten years ago the inquiry was limited to a "regulation speed" of 56 miles per hour, which we suppose refers to the average schedule speed. This year the original inquiry related to "the design of steam locomotives for obtaining a regulation speed of 100 kilometers," or 62 miles per hour; but it was modified for the American reporter, so as to include speeds of 50 miles per hour or more, and it was explained that this change was made on account of the excessive dead weight of American passenger equipment which makes the cars in the average express train weigh over 400 tons.

It seems unfortunate that the continued discussion of this important subject by International Railway Congresses is confined to the description of existing practice, and that the special and original design for very high speed service escapes the attention of the reporters and is not given any prominence in the discussions. The American reporter was not a believer in the necessity of special designs to suit the requirements of high speed, and expressed the opinion that success with locomotives used on long sustained high-speed runs is due to boiler capacity and the ability of the enginemen to secure the highest boiler efficiency at low fuel expenditure. This would imply that

all that is needed is a large boiler, and that the ordinary cylinders, valves and running gear would be equal to the requirements. This is the attitude generally assumed by locomotive builders and many of our motive power officers, and so long as it is maintained there can be little progress in real high-speed locomotive engineering.

In foreign countries a different attitude of mind can be detected, and the locomotives at the Brussels Exposition showed that more attention is given to special design for fast passenger engines by the French, Belgian and Bavarian builders. Ten years ago European railways regarded 56 miles per hour as representing a fast passenger schedule. At the Berne Congress this year the foreign reporters set the pace at 62 miles per hour, and quite a number of railways reported the attainment of such a speed in their schedules. One group of ten railways with representatives from France and Great Britain reported trains having a regulation speed of 62 miles per hour, some of them with a train of a maximum weight of 400 tons. Another group reported that they had locomotives which could reach a speed of 62 miles per hour, but that such speeds were exceptional and only attained in making up lost time.

In such service special attention must be given to the balancing of reciprocating parts, and there is still a diversity in the practice in this particular on foreign lines. These parts are not balanced in the four-cylinder engines of Germany and most French lines, while the Belgian and Midi lines in France balance all reciprocating parts on this type of engine though the pistons move in opposite directions. The flat slide valve in simplest non-balanced form is still used on some foreign passenger engines, though it is usually made of bronze.

The American reporter stated that although laboratory tests have produced considerable data relating to various forms of valves, no conclusion had been reached as to the superiority of either the piston or the flat type of slide valve, or the relative merits of the Stephenson valve gear and the stationary link constant lead gear of the Walschaert type. There is, however, a marked tendency on the part of American builders to use the Walschaert gear, and the same is true of the piston valve. It is the opinion of the foreign reporter that the valve gear should be adapted to piston speeds as high as 17 to 23 ft. per second, while the American reporter regards it as desirable to have the valve gear of passenger locomotives designed for general service, and for this reason he favors the Stephenson gear with variable lead, rather than the fixed link type with constant lead. This is a good illustration of the fact that little progress will be made in adapting the locomotive to very high speed service so long as fast continuous runs are not kept in view as the primary object of the design. In such service there are few stops; the engine runs long distances at top speed and under this condition the Walschaert valve gear, with its constant lead, is not objectionable, and the absence of large and heavy bearing surfaces of eccentrics moving at high velocity is certainly an advantage.

The development of the passenger locomotive in America has been constantly in the direction of a larger boiler and more wheels, and in the Pacific type the boiler has reached dimensions in diameter that are close to track limitations. The six coupled wheels provide sufficient adhesion for the full boiler and cylinder power, and this type of engine is well adapted to the service of a heavy passenger train at moderate speed. It is not the ideal high-speed locomotive, for the six coupled drivers are the very opposite of what is desired, and when high speeds are approached they act as a break in preventing further acceleration. In the brake tests of Atlantic type locomotives on the Atlantic City line it was found that the locomotive could no more than propel itself at speeds approaching 90 miles an hour. The head end resistance is sufficient at such speeds to account for a large part of the consumption of power, but a further explanation is offered in the fact that at very high speeds the centrifugal force of the rods produces such high pressures that the rod and pin friction absorb a considerable portion of the

work. If this is true of the Atlantic type, how much greater is the resistance of the six coupled crank pins in the Pacific type, for not only are the rods heavier, but the number of pins is increased 50 per cent. The friction of the larger driving bearings, 10½ in. in diameter and 14 in. long, is to be dealt with as well as the 8 by 14-in. journals on the trailing wheels, which, on account of the smaller diameter of the wheels, attain speeds of 750 revolutions per minute at 75 miles per hour, and the power absorbed at such velocities is much greater than is ordinarily suspected. The high-speed locomotive should, therefore, be no larger than the Atlantic type; the rods should be made of special steel and as light as possible, with pins and journals no larger than necessary for strength. When high-speed express traffic exceeds the capacity of the Atlantic type for one train it would be better practice, so far as locomotive operation is concerned, to haul two sections each with an Atlantic, rather than a heavy section with two Pacifics or one Pacific and one Atlantic, as is now frequently done.

#### MISSOURI, KANSAS & TEXAS.

IT is as a statement by the new management of extensions and betterments now under way or proposed that the annual report of the Missouri, Kansas & Texas for the fiscal year ended June 30, 1910, is of particular interest. During the past six years the Katy has not added any traffic producing mileage to its system. In June, 1910, about 90 per cent. of the capital stock of the Texas Central was bought by the M., K. & T. The Texas Central runs from Waco, Tex., to Kotan, 267 miles, and was valued by the Railroad Commission of Texas, as of June 30, 1909, at \$19,468 per mile. It originates a large tonnage for movement beyond its rails, and the cotton alone originating on the line has averaged 125,055 bales a year during the past four years. Heretofore almost none of the tonnage originating on the Texas Central has been sent over the M., K. & T., the connection between the two roads being at Waco, where the Texas Central also connects with the International & Great Northern, the Houston & Texas Central, the St. Louis Southwestern and the San Antonio & Aransas Pass. The operations of the Texas Central are to be included in the figures given by the M., K. & T. after July 1, 1910.

The M., K. & T. consists of a number of lines originally patched together to form a system, and the most difficult as well as the most important problem that has confronted the management in the past has been to bring this mileage up to a uniform standard. The fact that no new mileage has been added in six years shows how entirely the efforts of the management have been confined to improvements of existing property. In December, 1909, Edwin Hawley and associates bought control, and Mr. Hawley became chairman of the board of directors, Adrian Joline resigning both as chairman of the board and as president. A. A. Allen was elected president, and the purchase of the Texas Central is the key to the policy of the new management.

Most important of the improvements completed during the year was the grade revision work between Atoka, Tex., and the Red River, 38 miles of this line being double tracked. All that remains to be done on this piece of work is to finish ballasting the second track between Caddo and Durant, about eight miles, and moving the northbound track from the old to the new location, five miles south of Caney. All of the bridges have been renewed in concrete and steel, and the ties on the new bridges are creosoted. This work has made it possible for locomotives which formerly handled a tonnage of 980 to haul 2,000 tons southbound and 1,700 tons northbound. The most important work now under way is the continuance of grade revisions on the section extending north from Atoka to McAlester, 44 miles, and the revision of lines on the Oklahoma & Shawnee division to avoid flood damage. On the St. Louis division it has been necessary to make unusual expenditures in river protection. The roadbed on this division is frequently

softened at numerous points by overflows from the river and will require a revision of grade, raising the track above the high-water mark and replacing much of it to bring it up to the standard of other divisions. Maintenance and improvement work that may be mentioned is the completion of ditching on 545 miles of line, widening embankments on 53 miles and laying 130 track miles with new 85-lb. rail. In June the burning of 335,000 cubic yards of clay ballast was completed, and arrangements have now been made to place it under track.

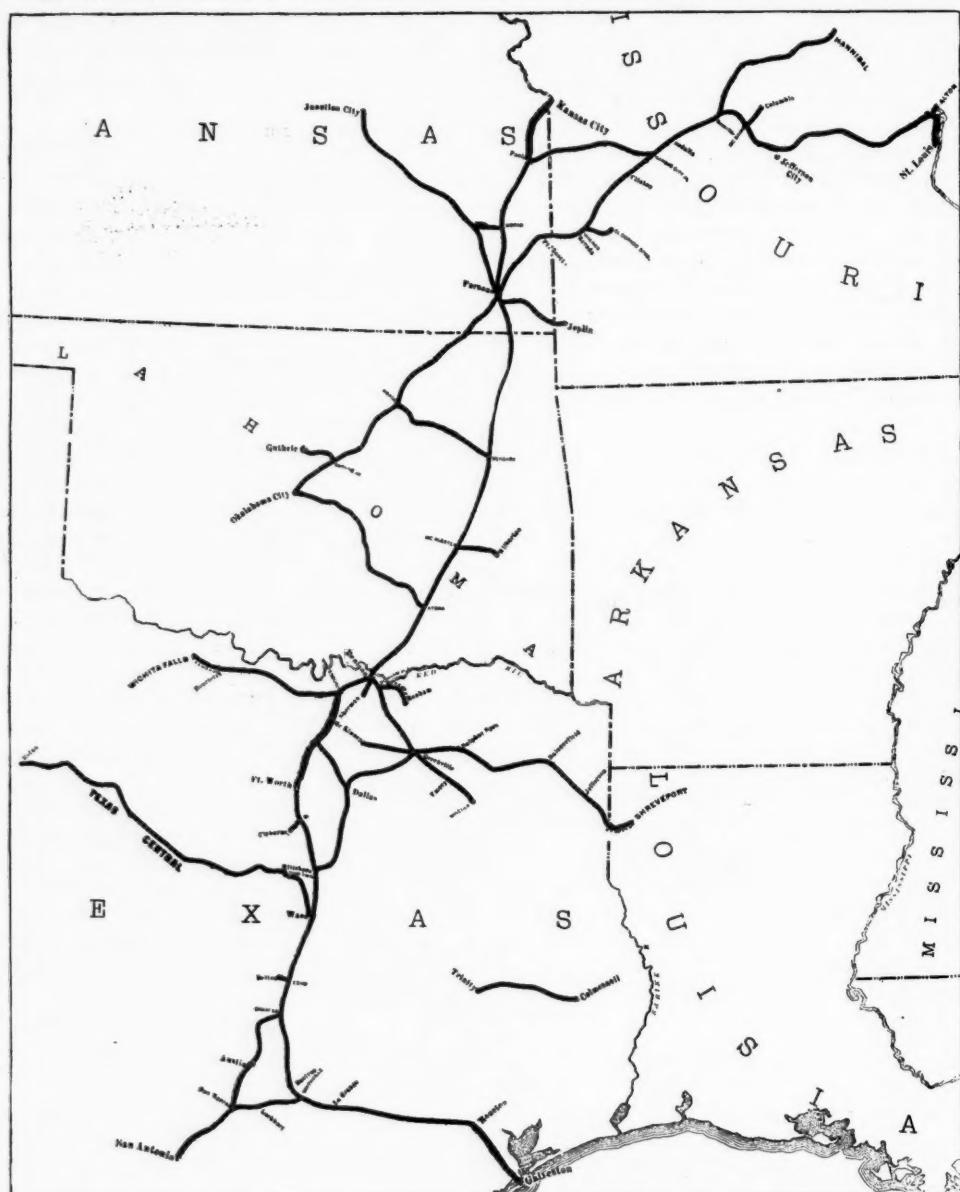
Extensive improvements have been made in station buildings in the past few years. The joint passenger station at Joplin, Mo., which was described in the *Railway Age Gazette* of March 17, has been completed, and during the year a new passenger station and modern freight station have been built at Tulsa, Okla.; new depots have been built at twelve points, and work has been in progress on the new union passenger station at Denison, Tex., which will be ready for operation in a short time. The work is nearly finished on the new outer yard, and inside terminals at St. Louis.

Besides the physical betterment which is being carried forward in such a vigorous manner by those who are now operating the property, there has taken place a much needed readjustment of the finances of the company. This readjustment was not formally authorized by the stockholders until after the close of the fiscal year, but it is described in the annual report, which is dated September 10. At a stockholders' meeting on July 30, 1910, a new consolidated mortgage securing an authorized issue of \$125,000,000 5 per cent. bonds was approved, and the directors were given discretion as to when these bonds may be issued. There are reserved bonds of this issue to refund certain outstanding obligations of the company, and the remaining bonds may be issued for building new line, making additions and betterments to the property and for acquiring, through purchase of securities or otherwise, additional lines for extensions. To pay for the terminals at St. Louis a \$2,000,000 note of the M., K. & T. Terminal Company, endorsed by the M., K. & T., was sold, and to pay for the Texas Central stock the M., K. & T. borrowed \$3,600,000 on its three months' notes. Since the close of the fiscal year the company has sold \$10,000,000 one-year 5 per cent. notes. The proceeds of this sale were used to pay for the \$2,000,000 terminal company note and the \$3,600,000 notes issued in connection with the Texas Central purchase. About \$4,000,000 will be used to pay for additional equipment, which has been ordered for delivery during the present calendar year. Since the note sale took place after the close of the fiscal year, there is in the yearly accounts no mention of discount on securities sold.

In 1910 the Katy earned gross \$26,600,000, which is the largest gross in the history of the company and is an increase over 1909 of \$1,300,000, or 5 per cent. The increase in gross is

better than at first appears, because 1909 was not an unprofitable year on the M., K. & T. If the gross in 1910 be compared with 1907, for instance, the Katy makes a better showing than many roads which have reported 10 or 12 per cent. increase in gross in 1910, as compared with 1909.

Operating expenses last year amounted to \$19,200,000. This compares with \$17,700,000 in 1909. It is much the same story as with other roads all through the country; wages have increased, more has been spent on maintenance of way and equipment, and transportation expenses have increased with an increased train mileage. After the payment of interest charges the M., K. & T. last year had a net corporate income of \$1,000,000, as compared with \$1,400,000 in 1909, and dividends of 4 per cent. on the preferred stock called for payments of \$520,000 in each year, leaving in 1910 a surplus of \$500,000. The increased train



Missouri, Kansas & Texas.

Crosshatched lines show trackage rights.

mileage mentioned above was disproportionately large, because a large quantity of coal was purchased in anticipation of the coal miners' strike, which became effective April 1, causing an unduly heavy movement of company freight, and also because a protracted drouth made it necessary to haul water, in many cases, for long distances. While the ton mileage of revenue freight totaled 1,622,000,000 in 1910, an increase of 3,960,000 ton miles, the ton mileage of company freight totaled 363,000,000 in 1910, an increase of 97,000,000 ton miles over 1909.

This would seem to account in a large measure for the fact that the average revenue train load was 216 tons in 1910, as compared with 234 tons in 1909. The freight density on the M., K. & T. is less than what it is on the Kansas City Southern, due to the large branch mileage which the Katy has, contrasted with the almost total lack of branch mileage on the Kansas City Southern. Last year the M., K. & T. freight density was 528,021 ton miles, an increase of only 1,290 ton miles over 1909. The average revenue per ton per mile was 1.05 cents in 1910 and 1.04 cents in 1909.

There is a greater proportion of tonnage furnished by products of mines and of manufactures and a smaller proportion furnished by agricultural products than might be expected on a road serving the territory covered by the M., K. & T. In 1910 products of mines furnished 36.23 per cent. of the total 7,500,000 tons carried; manufactures furnished 24.27 per cent.; agricultural products, 19.14 per cent.; live stock and animal products, 6.74 per cent.; lumber, 9.14 per cent., and miscellaneous articles, 4.48 per cent. L. C. L. shipments furnished 6 per cent. of the total tonnage, but 14.90 per cent. of the total revenue; and miscellaneous freight, with only about 4½ per cent. of the total tonnage, furnished 18.41 per cent. of the total revenue.

President Allen, in speaking of the prospects for the current year, says:

"Our industrial department, which was reorganized the early part of the year, has been very active in securing industries and developing the horticultural and agricultural business tributary to our line. The fruit acreage is the largest we have ever had, and the production of peaches unusually high. A large acreage is planted in new orchards, and the fruit industry should increase yearly. We have approximately 85,000 acres along our lines planted to vegetables and fruit. The growing of oranges in south Texas seems to be an assured success, and the acreage planted to this fruit is very large, and should gradually increase. A large acreage has also been planted to figs in south Texas, and a large production of that fruit is being secured. A number of preserving plants have been established for the packing of figs, and others are in contemplation.

"The present outlook for industrial development is encouraging, and, with a good production of corn and cotton, there should be no difficulty in showing a marked industrial development during the year."

An annual report as complete, as frank and as free in its discussion of the operation of the property as is that of the Missouri, Kansas & Texas is an unusually interesting piece of contemporary railway history. It is hard to find a single point to criticize in the form or substance of the 1910 report. There is a full and very interesting discussion of the railway's relations with the public, and this year's operations, as well as its plans for the future—a discussion of these questions both by the chairman of the board and by the president. In addition there is an exhaustive exhibit of the details of the operation of the road. For instance, a detail that adds greatly to the interest of the report from a railway man's point of view is the inclusion of a table showing the revenue and the proportion of total revenue that is furnished by each class of commodities. The publication of such statistics gives quite an unusual impression of frankness.

The following table shows the results of operation in 1909 and 1910:

	1910.	1909.
Average mileage operated.....	3,072	3,072
Freight revenue.....	\$17,098,567	\$16,853,840
Passenger revenue.....	7,681,745	6,964,089
Total operating revenue.....	26,559,346	25,800,915
Maint. of way and structures.....	4,095,793	3,370,150
Maintenance of equipment.....	3,310,795	3,379,083
Traffic .....	664,419	587,451
Transportation .....	10,223,674	9,496,851
Total operating expenses.....	19,186,049	17,667,406
Taxes .....	1,012,918	967,309
Operating income.....	6,348,609	6,652,506
Total corporate income.....	6,658,250	6,847,635
Net corporate income.....	1,041,463	1,586,296
Dividends .....	520,000	520,000
Surplus .....	521,463	866,296

#### NEW BOOKS.

*Kent's Mechanical Engineers' Hand-Book.* By William Kent, M.E., Sc.D. Eighth edition, rewritten and enlarged. Published by John Wiley & Sons, New York; 1,500 pages.

The first edition of this popular hand-book appeared in 1895. Since that date it has been repeatedly revised by cutting out pages and paragraphs and inserting new ones in their places, and by adding new pages which have been designated by letters "a," "b," "c," etc., following the page number. Now the whole work has been revised, much of the old matter has been rewritten, a large amount of new material has been added, everything has been reset and new plates have been made. The result is the 8th edition (71st thousand), a book which in the choice of material presented and in its arrangement is entirely complimentary to its distinguished author, and which in form and typography reflects great credit on its publishers. The original edition was a book of less than 1,100 pages; the present contains 1,500; the topical index of the first edition occupied 12 pages; that of the present edition occupies 95 pages. References to Acheson's deflocculated graphite, to Dr. Frederick W. Taylor's contribution on the art of cutting metals, to the experiments of Shuman and of Willsie and Boyle in utilizing the sun's heat as a source of power, to the multi-stage centrifugal pump, to the low-pressure steam turbine, and to the Melville-McAlpine floating frame reducing gear for steam turbines may be accepted as evidence of the author's success in bringing the work up to date, for these are all matters of recent development. The sections on the steam engine and its various applications are, in the new edition as in the former ones, full and satisfactory. If one is a little inclined to criticize on finding the presentation of data from boiler tests limited to the results of the Centennial trials, which occurred thirty-four years ago, he will consider that a hand-book is not a treatise, and that the data presented is good so far as it goes. But even if the boiler data is venerable and perhaps deficient, the lack is compensated for by good descriptions of newer things, such as the world's greatest chimney at Great Falls, Mont., and systems of water softening. The electrical section, which in a mechanical engineer's hand-book is necessarily brief, is nevertheless in the new edition materially extended as compared with the corresponding section in earlier editions, 72 pages, or about 5 per cent. of the whole book, being devoted to this interest.

In the more permanent departments of knowledge the new edition has lost nothing of value as compared with earlier ones. The mathematical tables and the tabulated values of various constants which have made earlier editions of the book so valuable to engineers are retained, and whenever possible they are improved. For example, the tables of the properties of saturated and superheated steam are condensed from the admirable work of Marks and Davis, recently published.

All in all the revised hand-book is true to its purpose. It presents facts of large significance in small space, and as an index of mechanical engineering practice of the present day it is practically complete.

*American Society for Testing Materials. Year Book for 1910.* Published by the Society. University of Pennsylvania, Philadelphia, Pa. 300 pages; cloth. Price, \$5.

The American Society for Testing Materials has sent out to its members a year book covering 300 pages in the same style of volume as that containing the annual proceedings. It contains the 28 standards which have been adopted by the society for various forms of iron, steel, lumber and cement; a list of members, arranged alphabetically, and also their geographical distribution; an account of the officers, by-laws, committees and technical problems of the International Association for Testing Materials, with which the American society is affiliated; a summary of the proceedings of the 13th annual meeting; and the annual report of the executive committee. Non-members can obtain the book from the secretary, at the University of Pennsylvania.

## Letters to the Editor.

### HEAT TREATMENT OF AXLES.

Pittsburgh, Pa., Oct. 25, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In your valued paper of October 21 is an editorial on the Street Railway convention, which was held at Atlantic City. One of your specialists has made a very good article, indeed, out of some of the matters taken up at Atlantic City. I was at this convention the entire time and paid particular attention to the proceedings and meetings of the engineering section.

I am wondering where your representative got hold of the remarks as regards a case on record where the manufacturer agreed to give a certain lot of axles heat treatment, etc. This was our own experience in one case. The question of the heat treatment of axles has been given a great deal of study by us, and we have been fortunate in having, perhaps, more of this work to do than any one else, especially as regards the inspection and testing of the heat treated axles made under the original specifications of the Interborough Rapid Transit Company; these are much more elaborate than the suggested specifications covering heat treated axles presented at the convention.

I criticise very severely the specifications suggested, for the reason that they call for a very particular product, which will have to be made in a very particular manner, and the question of selecting tests to represent any given lot of axles treated together is not specified, which is in my judgment a grave error, for the reason that a given lot of axles treated together should be so treated as to make them uniform, and a test from any lot treated together should be specified.

Unless a test of the heat treated axles is very carefully made, we will have many forms of heat treatment, which do not represent uniformity. In other words, we have been asked to take up the inspection of heat treated axles to be made under very loose specifications, and found when getting on the job that each axle was treated separately, and, of course, changes in temperature produced different results in each axle.

In view of the importance of this subject, we quite agree with the editorial that this whole matter will have to be gone into very carefully, and I believe that you have handled the matter very well, and that your remarks are timely.

HENRY GULICK,  
President, Gulick-Henderson Company.

### A FRIENDLY CRITICISM OF POOR PASSENGER SERVICE.

Philadelphia, Pa., Oct. 31, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

You were good enough three years ago to print and accompany with editorial comment a communication which I sent you in regard to the side of railway matters turned towards a traveler going to Chicago. Let me give you a briefer experience between Philadelphia and Boston. These details may explain the incredible fact that railways are disliked, in spite of the indubitable fact that no capital in this country has been more useful, none has accomplished more, none has been on the whole more wisely managed, and none has in its control abler men or, I might add, from a wide personal acquaintance, men more agreeable or of a higher stamp and character. The best type of railway man seems to me the best type of American to-day living.

As I leaned over the counter of a ticket agency in this city of one of the largest railways in the world, at a brief purchase of transportation under some difficulties, and asked the very intelligent man who had been trying to adjust the rules to my needs, "Do most go away satisfied?" "No," he said, "nearly all go away sore." Could worse be said? People do not go away "sore" from a department store or a dozen other of

the greater agencies of the social organism. They are apt instead to go away with a certain absurd loyalty with regard to the establishment with which they always deal, and come back to it under personal inconvenience, and go on dealing with it when they move to another city. Yet the railway, which ought to have a loyalty like that of a nation, lets its customers go away "sore" and wakes up when a great period of legislation comes, like that through which we are now passing, with a sudden consciousness that it has no friends anywhere, except those whose self-interest attracts them to its financial operations; and their support is so dangerous that it has done the roads more harm than good at Washington.

What happened to me will explain what leaves people "sore." I wanted to go to Boston on the "Federal." I had a mileage ticket over the Pennsylvania, over whose tracks the Federal was to pass. Could they punch out the transportation to Jersey City and back and let me pay the rest of the transportation? No, they couldn't. If I boarded the Federal with my mileage, would the conductor punch and let me pay from Jersey City? Certainly, but the ticket office could not do it. (This I have since been told was an error.) Why? It made the accounts too difficult. This you and I know is nonsense. I have bought a certain amount of transportation, good on demand. I wanted to add to this transportation. I am in the newspaper business. If a man has bought a certain amount of space from us and wants to add to this space, out of which we can make a little money—and I wasn't being carried at cost to Boston—do we tell him that it is too much trouble to keep the accounts of a little more business? Not much! We meet him in the middle of the road and give him the glad hand.

I bought my round trip ticket and went to the train. It was 30 minutes late, but this was no one's fault except that no way has yet been discovered of arranging transportation so that it will be equal to its work during the rush seasons economically. Instead of leaving at 8:55 as we should, we left at 9:30, baggage adding to the train delay. There was one porter. Not a berth had been made. He was working as hard as he could work by schedule. It was 11:30 before I could get into my berth. What was the reason? There had been a rush of transient travel and nearly every seat in the car had been sold from Washington to meet the overflow from the chair car, and I (with others who had boarded the car all the way on from Baltimore to Trenton) waited while one porter began making berths after the train left Philadelphia. Manifestly, every one of us was irritated at having been deprived of two hours' sleep which we had a right to expect, having paid for the use of a berth from the time we boarded the car.

I reached the Back Bay Station in Boston at 6:55 on time, which is now usual, though a few years ago, before motive power had been improved, this train was frequently late.

I had to leave Boston on the midnight train for New York. I wanted to get my sleeper. Pullman office not open at 7 a.m. I stepped to the ticket agent and asked him if I could leave the money for a berth, and presented to him an envelope on which was written: "Left at the owner's risk," and all the necessary order. He shook his head. "You used to do it." "Yes, but so many people wanted it that there was a rule made prohibiting us from taking any money for the Pullman." Can you match this? A hundred or more people reach the Back Bay station half an hour or more before the Pullman office opens. Each morning some one or several want to buy a berth. Nothing would be easier than to have a system by which the ticket agent would, at their risk, pass on the deposit. No; "so many people want it" that this is a reason for a public service corporation deciding it will not do it, though the two offices are within a yard of each other and are practically responsible to the same authority. So I have to waste time in coming back to the station to get my berth, and naturally have another reason for being "sore."

I board my car in the evening. I leave my hat in my berth. My dress-suit case is in the way. The porter lays the dress-

suit case on top of the hat. I point out the damage. But the porter falls back upon the doctrine of "contributory negligence." "This ain't no palace car," said he; "gen'l'm'n in a sleeper is expected to wear their hats till they get into bed." There was the railway spirit at the bottom of the ladder exactly as I had met it on another rung, higher up, as I tried to purchase my ticket.

This meets you at every turn. I have just been to Salem, Va., going by way of Hagerstown at night. I raised the question again of using my mileage. I was sold a berth through, but against letting me use my mileage to Hagerstown, there was a rule. When I came back I bought a ticket to Washington and used my mileage the rest of the way without protest. Why should it not be wise for the road to do it both ways? Everyone who knows human psychology knows that mileage is used up more rapidly than the individual ticket. The more mileage books a man buys in the year the better a railway likes it, and the quicker it can get him to use up a mileage book, the quicker he will succumb to that psychosis of the mileage book when it is a temptation and an invitation to travel, which is not the case when cash is to be paid for the next ticket.

Again, partly by "contributory negligence" on my part, in shifting my belongings from one sleeper to another, my hat was left on one car in Washington while I landed in Philadelphia, a hatless man. A hat is a very small matter and attracts no attention on your head, but it is really amazing the amount of attention your head without a hat will attract in a railway station, in a street and in a business building. I spoke to the sleeping car conductor. I know he had had long service because he was so sound asleep. "Ask the \_\_\_\_\_." This officer explained in great detail, at the West Philadelphia Station—where incidentally I had to stop, and could not go on to Broad street in any way except by taking a cab or placing myself, a hatless man, in a hatted car—I asked the \_\_\_\_\_ should I go to the office in the Broad Street Station or the main office of the Pullman Company in the Arcade Building. "The station will do it for you." So I got a hansom and reached the Pullman office in the Broad Street Station. The Pullman office there had nothing to do with stray hats. It was the business of the superintendent. I crossed to the Arcade Building and the superintendent was out; the assistant superintendent was out; the boy knew nothing about hats; but after some delay someone appeared whose business it was to set the machinery in motion which would and did recover my hat, which I duly received, a courtesy courteously extended. Now why should the Pullman conductor send me to another man and the other man send me to the wrong office, and the whole machinery creak like this, when everybody concerned ought to have known instantly what should first be done?

These are the experiences—not all the experiences—of two short trips. They are multiplied by all the millions that travel on American railways. The result is an economic loss to the roads, to the country and to every passenger, the aggregate of which is inconceivable. If the roads were only so managed as to attract the loyalty of those who ride on them, there would be no limit to the legislation which they could obtain in order to facilitate their own admirable work which, in the greater enterprises which they conduct, is done efficiently to a degree which is not realized except by those who, like myself, have given years to the subject; and have seen the wretched way in which railways are managed in other countries. Yet for lack of care at the point of contact with your customer, on which every other business lavishes the lubrication of courtesy, so as to try to make it certain that nobody leaves "sore" and everybody leaves satisfied, on the whole the most beneficent agency in modern civilization finds itself at every great crisis, almost friendless in the general mass. Yet, as I said at the beginning, and shall say all my life—for my experience and acquaintance is large and my memories of some, who are now gone, dear to me—an able railway man is on the whole the best and ablest man existing, of American men.

W.

## ELECTRICAL OPERATION OF DRAWBRIDGES.\*

BY S. F. NICHOLS.†

The first installations of electric motors for drawbridges were on highway bridges, commencing about 1890. In fact, railways were comparatively slow in adopting electric power for this purpose. There are several explanations for this. It is only comparatively recently that steam railways have organized well-equipped electrical departments and employed staffs of trained electrical engineers. On the other hand, the lake cities, Chicago, Cleveland, Milwaukee, etc., having early faced the problems of generating and distributing electric current for light and power, and having electric car lines operating on their streets, were very naturally easily induced to adopt electric power for operating their new bridges, and, in many cases, the older ones. In most of these cases, current was obtained from the street car circuits at very favorable rates. The cars had to cross the city's bridges and it was not a difficult matter to arrange for using the car company's power. The steam railway bridges were not so fortunately located with reference to securing electric power for operation, and the only points where this power therefore could be applied to these structures were in the larger cities where the bridges happened to be located. The great majority of the draw spans being at points remote from the larger cities, it was out of the question even to consider electrical operation without the installation of an independent power plant.

The improvement in electric motors and other electrical apparatus was so rapid, and electric power became so much more available at many points, that motors were put on many existing structures and the machinery for new bridges was laid out with reference to this method of operation.

An added incentive to the adoption of electric power for bridge operation was furnished by the development of the bascule type of drawbridge, the first of which was the Van Buren street bridge in Chicago, followed shortly by the Metropolitan Elevated Railway bridge located beside it. A large percentage of the bascule bridges that have been built have been equipped with electric motors and controlling devices.

## ADVANTAGES OF ELECTRICAL OPERATION.

For the amount of horsepower developed, the electric motor is light and compact and is conveniently reversed, running equally well in either direction. It has no reciprocating parts and therefore the mechanical wear and internal friction are almost negligible quantities. It is capable of sustaining a heavy overload for short periods, which enables it to take care of the very difficult problem of accelerating a heavy mass and also of operating the bridge against high wind pressures that may occasionally be experienced. It is almost noiseless in operation. Being compact, it can be located close to the point where the power must be used, thus obviating the necessity of having a large engine room with a heavy floor system above the deck of either the swing or bascule span. This makes it possible to locate the bridge operator at the most convenient position from the standpoint of accessibility, or where the best view can be obtained of the river or railway or highway traffic. The motors can be located on a moving portion of the structure while the operator's house is located on the fixed part. This is one reason why the electric motor has been so important a feature in the development of the bascule bridge, as on a number of present designs the leaf motors as well as the motors operating the locks at the extreme point of the bridge, move with the leaf through its entire angular range of motion. Connection can readily be made between the moving and fixed portions of the bridge by means of swinging loops, flexible joints or commutating devices. The electric motor, furthermore, as at present designed and constructed, requires comparatively little attention, and the possi-

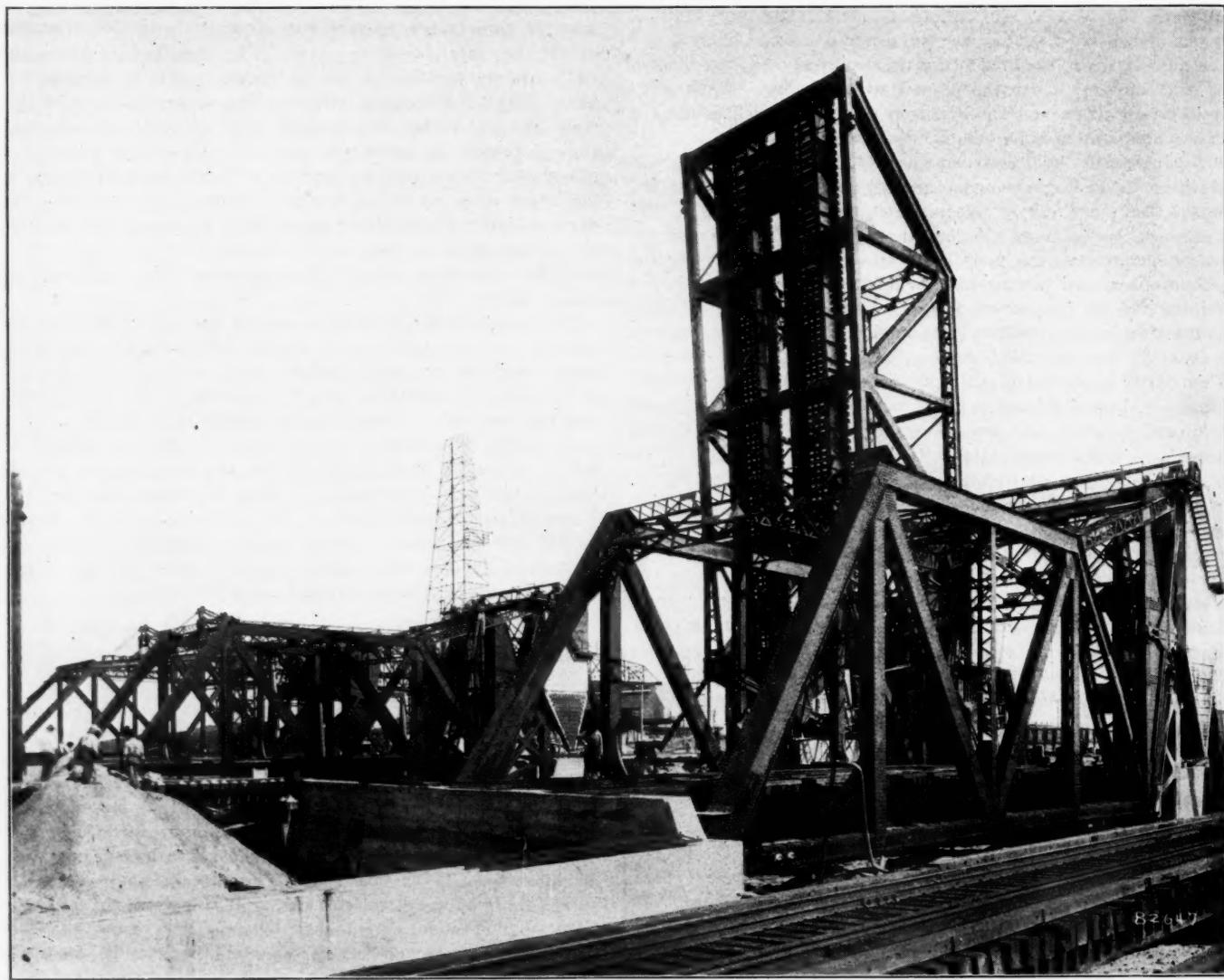
\*From a paper presented at the third annual convention of the Railway Electrical Engineers' Association.  
†With Geo. P. Nichols & Bro., Chicago, engineers.

bility of its getting out of order and refusing to do its work is very remote where periodical inspection is given.

STANDARD ELECTRICAL EQUIPMENT.

The modern bascule bridge requires one or two motors for the operation of the moving leaf, a motor for the front lock, and in some cases a motor for the rail locks. Frequently, moving rail locks are omitted and the end locks are operated by hand power. Each of these motors is ordinarily provided with a solenoid brake and the motors operating the end lock and rail lock are automatically stopped by the current being cut off and the brake being applied when the lock in its travel reaches the end of its motion in either direction. The current is ordinarily cut off from the leaf motors and the brakes applied when the leaf in opening reaches a point beyond which it is dangerous

it is not usually found feasible to install a mechanical brake, and in order to avoid the possibility of disastrous results attending the failure of the motor brakes to hold the leaf it is customary to install what is called an emergency brake, which will be applied automatically in case the current fails, or may be applied by the operator if desired. This brake is set by springs and ordinarily pulled into release before starting the bridge, and is applied again after the swing is made, not being used as a service brake unless the emergency conditions arise. An electric solenoid has frequently been used for releasing this brake, but a better method has been found in the use of a small electric motor operating a mechanism for releasing the brake, and holding it in release as long as the current is held on the motor. Rupturing the circuit by the operator, or by the loss of current



Strobel Bascule Bridge; Indiana Harbor.

to allow it to travel. The controllers for the operation of the several motors are located in the operator's house conveniently situated, and a switchboard is provided carrying the necessary instruments, switches and circuit breakers or contactors. The motion of the leaf is under the control of the operator at all times except when it reaches the danger point in opening, when the automatic stop acts. The motors for the end locks and rail locks are ordinarily started in the proper direction and run continuously until automatically stopped by the action of the contact switches, which cause the rupturing of the motor circuit at the switchboard. The positions of the bridge leaf and locks are shown to the operator by indicator lights conveniently grouped in front of the controller.

Owing to the fact that all the motors are on the moving leaf,

on the line, automatically trips a release and insures instantaneous application of the brake without waiting for the mechanism to go through the reverse motion corresponding to that in releasing. This arrangement is much less liable to derangement than a large solenoid and much simpler to repair in case of trouble.

The equipment for a large swing bridge is somewhat more elaborate than that for a single leaf bascule bridge, owing to the necessity of having a powerful lift or wedge mechanism at each end of the bridge, and the fact that some form of moving rail lock is necessary. Therefore, in addition to the motors required at the center for swinging the span, a motor is necessary at each end for the lift or wedge mechanism, and an additional motor is usually necessary at each end for

the rail locks for the single or double track, as the case may be. On the ordinary swing bridge it is perfectly feasible to use a mechanical brake so that the electric motor brakes and emergency brakes for the swing may be omitted. The operation and control of the wedge motors and rail lock motors is the same as on the bascule spans. The same general arrangement of indicators and automatic stops is applicable to the wedge and rail lock motors.

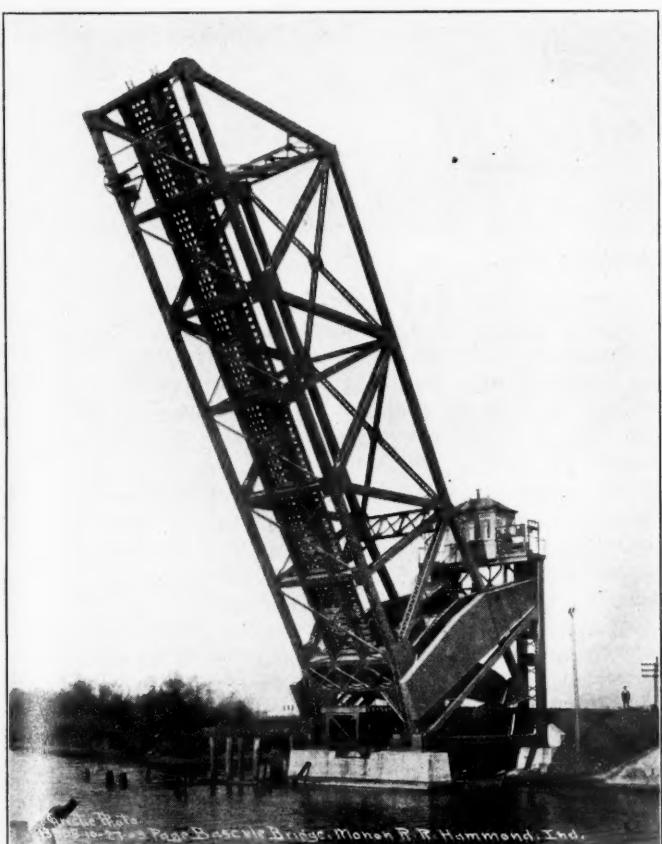
#### ELECTRIC INTERLOCKING.

It will be readily seen that to place the operation and control of a massive drawbridge in the hands of an ordinary and usually low-priced operator involves a possibility of trouble and disaster not pleasant to contemplate. He has before him a few

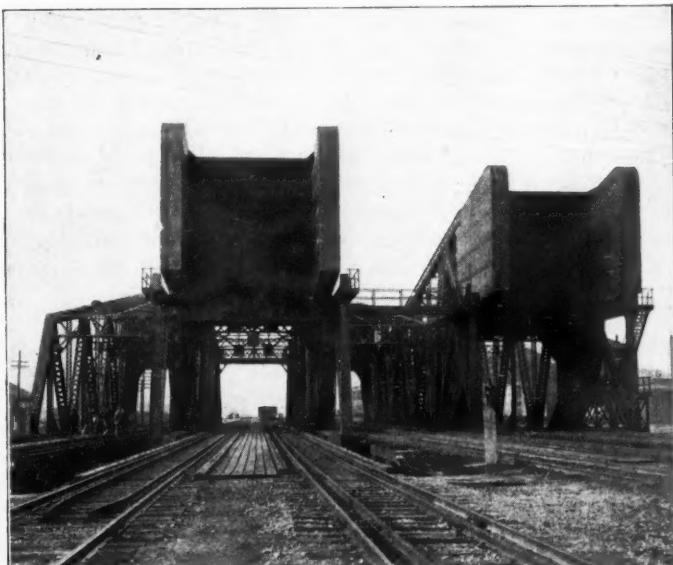
small levers, the indicators and the switchboard equipment, but cannot see the actual motion of any of the devices that are operated, except that of the span itself. Unless some provision is made to prevent it, it is always possible for him to attempt one operation before another is completed, which might under some conditions wreck the bridge, or bring disaster to railway traffic. To avoid the possibility of such occurrences, a system of electric interlocking has been developed so that the control of each motion in the entire operation of the bridge shall be completely interlocked with the next preceding and with the next succeeding one, if any, and with the railway signals in such a way that current cannot be turned on any motor until the pre-



Strauss Bascule Bridge.



Page Bascule Bridge; Hammond, Ind.



Scherzer Eight-Track Bridge at Chicago.

ceding motion has actually been performed. In opening, it is impossible for the operator to turn current on to any of the motors on the bridge until such signals and protecting devices as the railway may provide have been set against trains. It is impossible to operate the wedge motors until the rail locks have been drawn. It is impossible to operate the swing motors until the rail locks and wedges have both been drawn. In closing, it is made impossible for the operator to drive the wedges until the span has been swung and is closely enough in line to allow

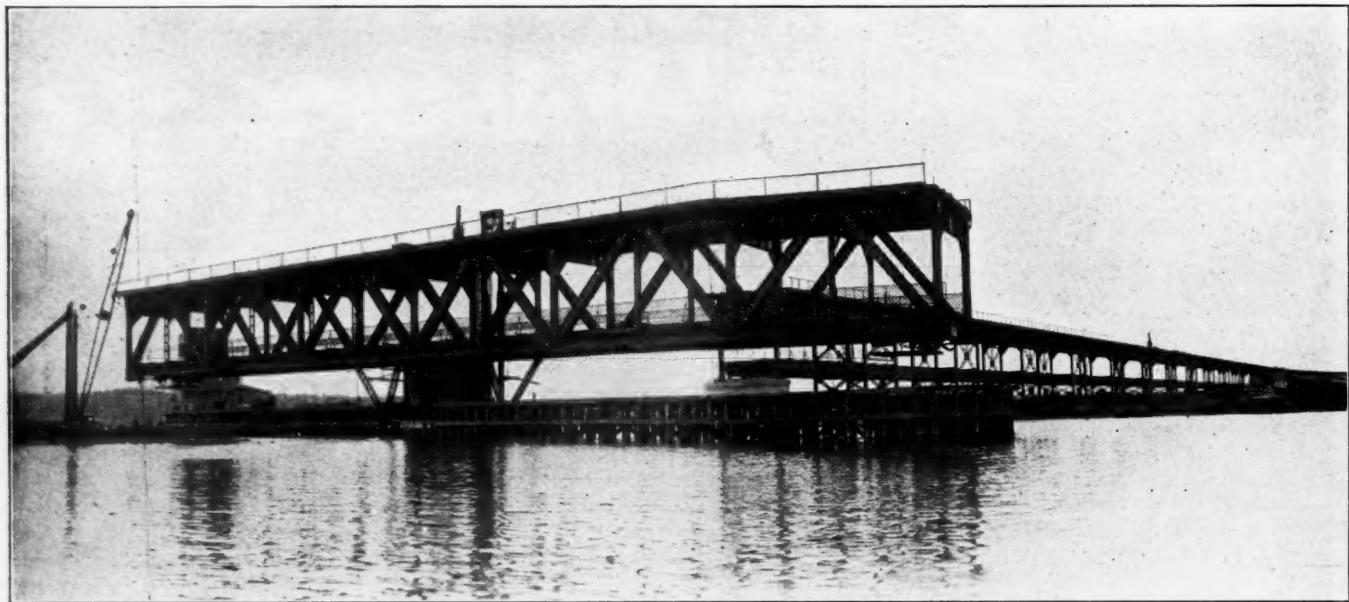
the wedges to be safely entered. It is impossible for the rail locks to be driven until the wedges have all been entered, and impossible for the operator to clear the signals for the passage of trains until all of the wedges and all of the rail locks have been fully driven. To attempt to accomplish these results mechanically by interlocking the several levers with each other, would still make it possible for the operator to attempt one operation after the preceding lever had been moved, but before the operation controlled by it had actually been performed.

The electric interlocking is accomplished by the circuits of any one device being held open at all times on a contactor board by the other devices until the proper time for its safe operation. When the other functions preceding the desired operation have actually been completed, the circuits are restored so that the desired motion can be performed by the operator through the proper controller. The same indicator switches on the several devices are ordinarily used for both the electric indication and electric interlocking, and to as large an extent as possible, the same circuits are utilized for the two purposes.

Little attempt is made at electric lighting on railway structures beyond the illumination of the operator's house and providing a sufficient number of lamp openings near the several machinery parts. The government requirements also have to be complied

electrical operation and control of drawbridges without being dependent on the plants and transmission lines of others. Under this scheme two arrangements are possible. One is to have the generating unit of sufficient capacity to supply current direct to the several motors on the bridge as required. The objection to this scheme is that all of the motors on the bridge have a considerable overload capacity and are subject to overloads under a good many conditions. The gasoline engine, on the other hand, has practically no overload capacity other than momentary, and it is therefore necessary to use a large and expensive engine for a comparatively small current consumption. If it is necessary to install the generating plant on the bridge, this means a large engine room and heavy floor construction to prevent excessive vibration. Another plan is to install a storage battery of high enough discharge rate to take care of the operation of the bridge under the most severe conditions and of sufficient ampere-hour capacity to operate the bridge for at least 24 hours without recharging. The gasoline-driven generating unit in this case may be very small, the requirements simply being that it must be able to recharge the storage battery at the desired intervals, it not being necessary for it to supply current direct to the motors on the bridge.

A still better arrangement, however, in the mind of the writer



St. Louis River Bridge.

with; these necessitate having red lanterns on the piers and at specified points on the movable spans. On bascule bridges it is required that the red lights at the front ends of the bridges be changed to green when the bridge has nearly reached the open position. This is sometimes accomplished by a lantern, hung as a pendulum, swinging from behind a red glass to a position behind a green glass as the bridge reaches its nearly open position. It is preferably performed by a double lantern and extinguishing the red and lighting the green by suitable contacts in the leaf indicator switch.

#### GENERATING AND STORAGE BATTERY PLANTS.

The adoption of electric power for the operation of drawbridges has usually been contingent on being able to secure direct current at the standard voltages or two-phase or three-phase alternating current at 60 cycles or 25 cycles. The electrical operation of many important drawbridges, however, is so desirable that even the impossibility of obtaining electric current from existing power plants for 24-hour service should not deter the engineers from its adoption.

The improvements in gasoline engine design and construction have made it possible to operate, to a good degree of economy, comparatively small isolated electric generating plants. The use of such a plant makes it possible to obtain all the advantages of

is a combination of the last two plans mentioned. This consists of the installation of a storage battery of a sufficiently high discharge rate to operate the bridge under the most severe conditions of wind and weather and of sufficient capacity to give the bridge from 24 to 40 openings. The generating plant consists of two direct connected gasoline engine driven units, the combined capacity of which is sufficient to operate the bridge independent of the storage battery, and either of which is available for the charging of the battery. The advantage of this system is that the bridge may be kept in commission even if the storage battery is discharged or out of service for any reason. It is also possible to charge the battery from either generating unit if the other is out of service from any cause. Furthermore, under extreme conditions it is possible to supplement the storage battery by using either or both generating units connected up with it for supplying current to the bridge. The generators and engines in the two units being duplicates, there is small possibility of both being out of commission at the same time. The engines may be started by turning current from the storage battery on to the generators connected up as motors during the period of starting. In either case the generating plant may be located either on the bridge structure or in a power house built for this special purpose on the shore. The latter arrangement

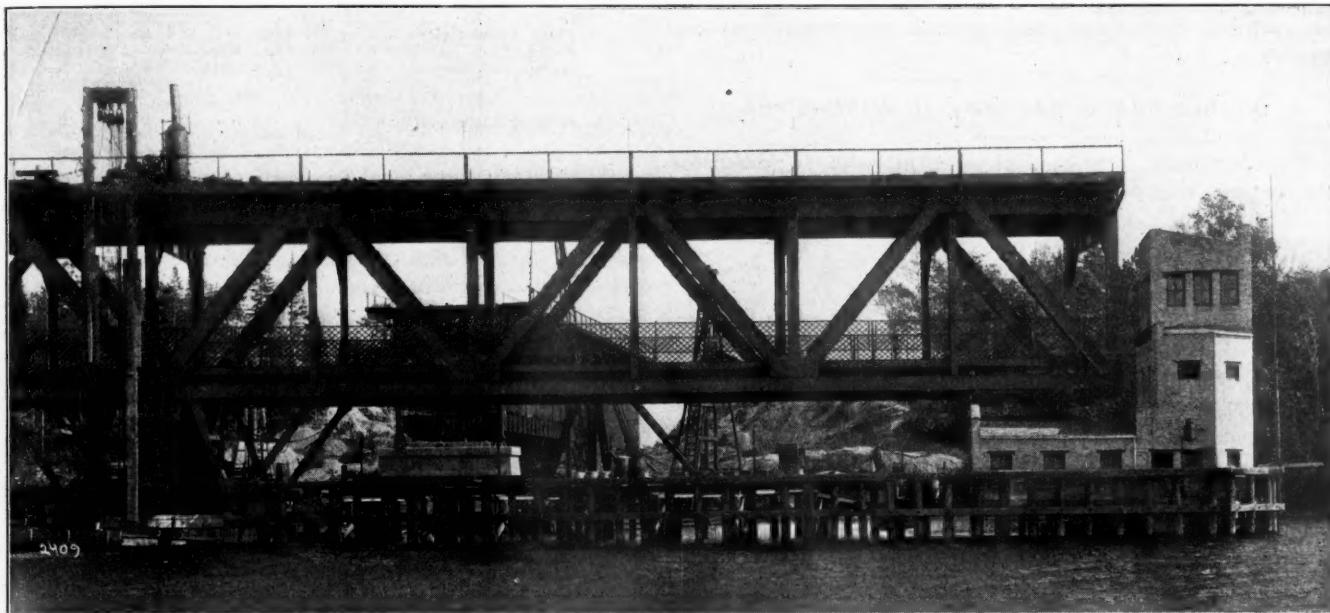
is likely to require more attendants but has the advantage of providing a more stable support for the storage battery and a better foundation for the generating units. Locating the battery plant on the shore also involves the use of submarine cables for supplying current to the bridge, if it be a swing span.

#### EQUIPMENT OF THE ST. LOUIS RIVER BRIDGE.

One of the most recent installations with which the writer has been connected was the operation and control of a 300-ft. double deck draw span recently built for the Interstate Transfer Railway Co. over the St. Louis river near Duluth, Minn. The span weighs approximately 1,152 tons and is swung by two 25-h.p. 500-volt series motors. The wedges at each end of the bridge are operated by a 15-h.p. motor and the four wedges at the center are operated by a 5-h.p. motor. There are sliding rail joints for double tracks on each deck at either end of the bridge. These, however, are all operated by the end lift mechanism so that no separate motor is required. The swing motors are operated through a series parallel controller and the three wedge motors are operated from one special controller, all three being started at the same time and running until automatically stopped by the rupture of the circuit and the application of the solenoid brakes at the end of the motion of their respective appliances.

clear vision down stream in the opposite direction, and at the same time have an unobstructed view of approaching traffic on both decks of the bridge. The first photograph shows the general view of the draw span and approach spans, with the former swung into a nearly open position. The next shows one-half of the draw span and a nearer view of the operator's house, which can also be seen through the structure in the general view. The operator's house is of brick and fireproof construction. The generating plant, consisting of two 15-k.w. 500-700-volt generators each direct-connected to a 30-h.p. two-cylinder gasoline engine, is in the first story directly underneath the operator's room. The storage battery, consisting of 264 cells, 160-ampere-hour capacity, is in the portion of the building extending under the deck of the bridge when opened. The convenience of this scheme will readily be recognized, especially when it is seen that when the bridge is opened the operator can step from his house on to the deck of the bridge or has easy access to the end wedge mechanism from the roof of the battery room.

Owing to the fact that the operator is not on the swing span, it is not possible to employ the usual mechanical brake. At the same time it is extremely necessary that the span be under con-



One End of Swing Span; St. Louis River Bridge.

Electric indication is provided for the motion of the draw span and wedge mechanisms and of each of the 16-rail connections. Electric interlocking also, as before described, is employed throughout. This interlocking extends even to each individual rail lock connection on both decks. Through the use of a contact device at the end of the span, it is made impossible for the wedges to be driven until the span is exactly lined up.

No electric power from outside sources being available, it was decided to install a special generating plant for the sole purpose of operating the draw span. To erect a building on the shore for this purpose would have meant additional operating expense on account of requiring an attendant in the power plant in addition to those on the bridge. The bridge, however, being a double deck structure, there was no place either on or above the bridge where generators or storage batteries could be installed. It was even found impracticable to locate the operator anywhere on the draw span where he could see the river traffic and the approaching traffic on both decks of the bridge. A novel solution was found, however, in building a combined power house and operator's house at the extreme end of the protection pier. The operator's room is located in the top story of the building and at sufficient height so the operator can see approaching boats through the structure of the bridge in one direction, and have a

trol, especially when a strong wind is blowing. This is accomplished by equipping each of the two swing motors with a solenoid brake of sufficient power to retard the motion of the bridge without checking it too abruptly. An additional brake of greater power is installed on each machinery set. This is applied normally by a powerful spring, and each brake is connected with a motor-operated mechanism designed to partially or totally release the same. This motor is connected with a controller in the operator's house, and by its use the operator can apply or release or partially release the brakes at will.

All wiring on the bridge and in the operator's house is entirely enclosed in conduit, there being no open loops even at the motors or controllers. The upper and lower decks of the bridge, all parts of the operator's house and the government signal lanterns are lighted by current from the storage battery.

#### OTHER RECENT BRIDGES.

There are probably about 15 drawbridges in this country at present operated from storage batteries. There is no question that the number will be greatly increased as the merits of this type of installation become better known.

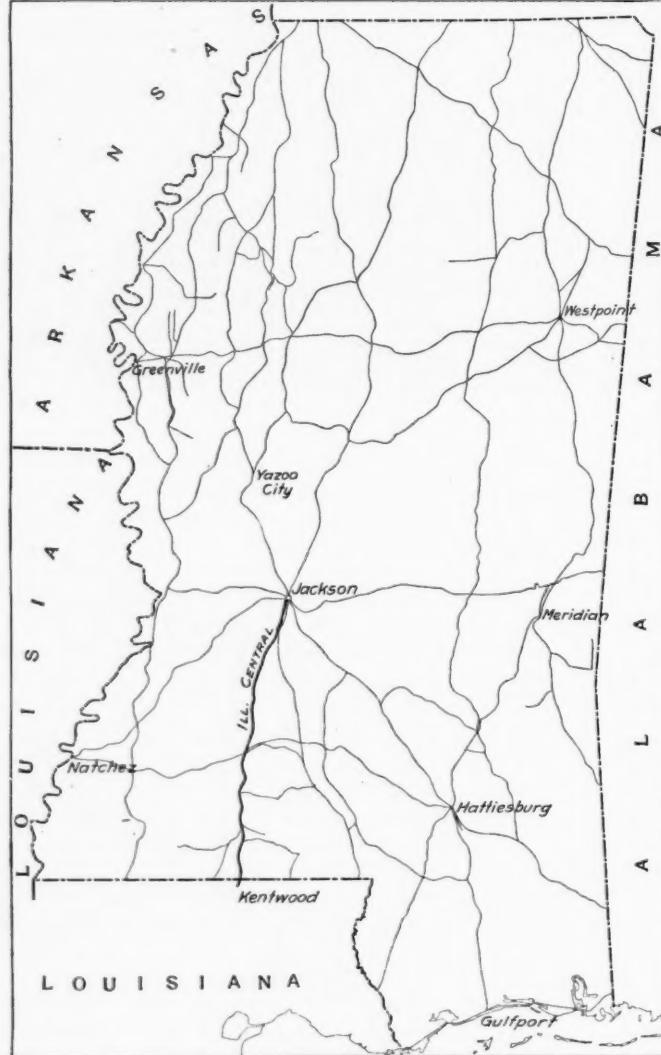
One of the most important and interesting recent installations operated by current from outside sources is the eight-track bridge over the Chicago drainage canal near Campbell avenue, one view

of which is shown herewith. This consists of four independently operated bascule spans, located side by side, two being on the north bank and two on the south bank of the channel. The four spans are controlled from two operators' houses, one on each side of the channel, the controlling, indicating and interlocking equipment being about as described above.

Another illustration shows five double-track bascule spans over the new ship canal near Indiana Harbor, Ind. All five spans are controlled from one operator's house, one common generating and storage battery plant being used for all. Electric power is received from outside sources at 440 volts, three-phase, 60 cycles. All of the bridges, however, are equipped with 220-volt motors. A storage battery is used for delivering current to the bridges and also for signal purposes, consisting of 128 cells, 160 ampere-hour capacity. This battery is charged from two 40-ampere mercury arc rectifiers. There is also a 35-k.w. motor generator set, which may be used for delivering current direct to the bridges, independent of the storage battery, or may be used for charging the storage battery under emergency conditions. The individual switchboards and controllers for operating the five bridges are conveniently located in the same room with the electric signal machines which control the five double tracks passing over the bridges. The same operators attend to the manipulation of the signal machines and the bridge-controlling devices.

#### DOUBLE-TRACK RAILWAY IN MISSISSIPPI.

The sketch map of Mississippi, given herewith, is printed for the purpose of showing the double track railway in the state.



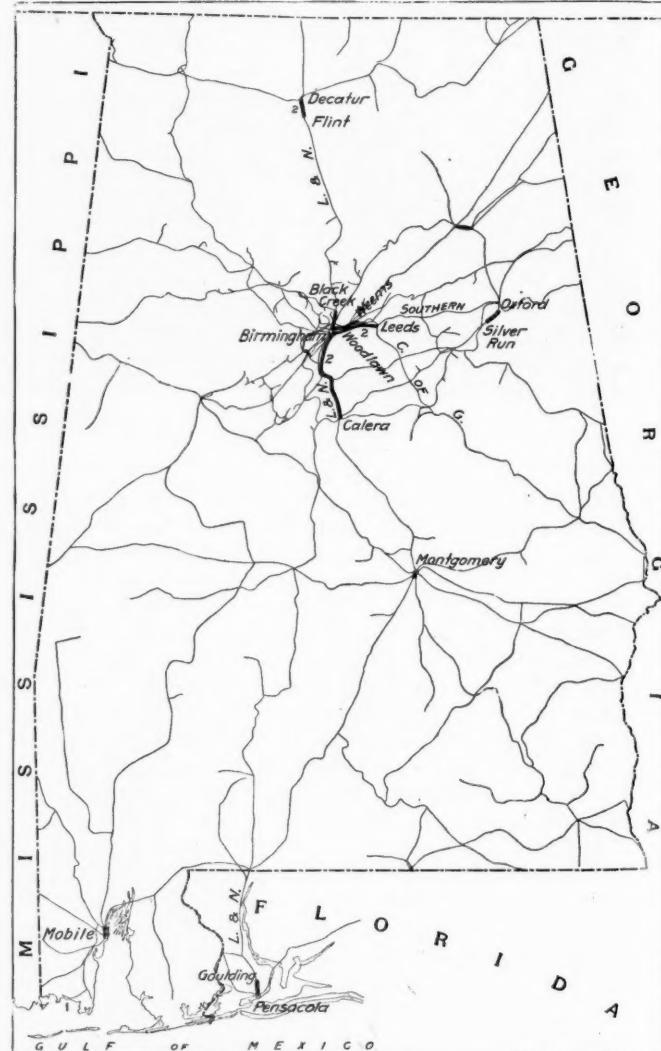
Double-Track Railway in Mississippi.

We find only one such line, that of the Illinois Central, from Jackson southward. The distance from Jackson to Kentwood, La., is 100 miles.

#### DOUBLE-TRACK RAILWAYS IN ALABAMA AND FLORIDA.

The railway map of Alabama, given herewith, is printed for the purpose of showing all sections of railways in the state on which there is more than one main track. The termini of the section, as shown in the map, are as given below. For the state of Florida no separate map has been made. The double track between Goulding and Pensacola, on the Louisville & Nashville, three miles, is shown in the map now printed. The only other piece of double track we have found in that state was shown in connection with the map of Georgia, published October 28, page 797.

ALABAMA		
Central of Georgia.		
	No. tracks.	Approx. miles.
Birmingham-Leeds	2	19
Louisville & Nashville.		
Decatur-Flint	2	6
Black Creek-Calera	2	40
Montgomery-Western Ry. Junction	2	2
Mobile-Choctaw	2	1
Seaboard Air Line.		
Birmingham-Woodlawn	2	2
Southern.		
Woodlawn-Weems	2	9
Oxford-Silver Run	2	7



Double-Track Railways in Alabama and Western Florida.

## ACCIDENT BULLETIN NO. 36.

The Interstate Commerce Commission has issued Accident Bulletin No. 36, containing the record of railway accidents in the United States during April, May and June, 1910, and also the tables for the year ending June 30.

## QUARTERLY RETURNS.

The number of persons killed in train accidents was 137, and of injured, 2,641. Accidents of other kinds bring the total up to 20,650 (766 killed and 19,884 injured). These reports deal only with employees on duty, and passengers. The accident statistics of electric lines are given in a separate table.

TABLE NO. 1.—*Casualties to Persons.*

Causes.	Total Persons					
	Passengers.	Employees.	Reported.	Killed.	Injured.	Killed.
Collisions .....	5	542	57	621	62	1,163
Derailments .....	7	660	54	422	61	1,082
Miscellaneous train accidents, including locomotive-boiler explosions.....	17	14	379	14	396	
Total train accidents.....	12	1,219	125	1,422	137	2,641
Coupling, or uncoupling.....	..	..	45	695	45	695
While doing other work about trains or while attending switches.....	..	..	41	4,289	41	4,289
Coming in contact with overhead bridges, structures at side of track, etc.....	3	17	339	17	342	
Falling from cars or engines or while getting on or off.....	27	607	144	2,957	171	3,564
Other causes.....	16	833	339	7,520	355	8,358
Total (other than train accidents). . . . .	43	1,443	586	15,800	629	17,243
Total all classes.....	55	2,662	711	17,222	766	19,884

The comparison with the April-June quarter of 1909 (Bulletin 32) shows considerable increases in every item. The explanation of this, so far as any explanation is available, is to be found in the general expansion of railway traffic. The importance of giving particular attention to the causes of collisions and derailments is well shown by a comparison of the first item in Table 1A with the item below it. By subtracting item 1 from item 2, it will be seen that the number of passengers killed from causes other than train accidents, which means largely from their own fault, are not markedly variable—43, 45, 37; while in the first item—12, 110, 7—the fluctuations are violent; indicating that the measures which have been taken by the railways to prevent passengers from injuring themselves have been much more successful than those which have been taken to prevent the wrecking of trains.

TABLE NO. 1A.—*Comparisons of principal items with last quarterly bulletin and with one year back.*

	Bulletin 36.	Bulletin 35.	Bulletin 32.
1. Passengers killed in train accidents..	12	110	7
2. Passengers killed, all causes.....	65	155	44
3. Employees killed in train accidents..	125	242	92
4. Employees killed in coupling.....	45	57	34
5. Employees killed, all causes .....	711	945	544
6. Total passengers and employees killed, all causes.....	723	1,100	588

The total number of collisions and derailments in the quarter now under review was 2,609, as below:

TABLE NO. 2.—*Collisions and derailments.*

	Number.	Loss.	Killed.	Injured.
Collisions, rear.....	206	\$231,825	17	238
Collisions, butting.....	114	\$256,848	24	419
Collisions, train separating.....	96	34,487	..	65
Collisions, miscellaneous.....	809	341,491	21	441
Total.....	1,225	\$864,601	62	1,163
Derailments due to defect of roadway, etc.	220	\$162,796	2	288
Derailments due to defect of equipment.....	663	567,296	8	146
Derailments due to negligence of trainmen, signalmen, etc.....	95	70,015	15	87
Derailments due to unforeseen obstruction of track, etc.....	55	82,946	7	112
Derailments due to malicious obstruction of track, etc.....	18	70,770	9	71
Derailments due to miscellaneous causes.....	533	306,082	20	378
Total.....	1,384	\$1,259,905	61	1,082
Total collisions and derailments.....	2,609	\$2,124,506	123	2,245
Total for same quarter of 1909.....	2,100	1,703,642	91	1,842
1908.....	2,130	1,617,398	104	2,008
1907.....	3,777	3,232,673	227	3,685

Following is the usual list of Class A train accidents—all in which the damage is reported at \$10,000 or over, notable cases in which passengers are killed, and those doing damage less than

\$10,000 and down to \$2,000, wherever the circumstances or the cause may be of particular interest.

TABLE NO. 2A.—*Causes of 35 prominent train accidents.*

[NOTE.—R stands for rear collision; B, butting collision; M, miscellaneous collisions; D, derailment; P, passenger train; F, Freight and miscellaneous trains.]

No.	Class.	Kind of train.	Collisions.			Cause.	
			Killed.	Injured.	Damage to engines, cars & roadways.		
1	R. P. & F.	1	1	1	\$1,364	54	Freight ran into rear of passenger train which had been derailed at a washout. Crew of passenger train all injured in derailment, and a passenger, who went back to signal the freight, was unable to do so. He had a fusee, but rain was falling and he was unable to light the fusee. He had no lantern. This derailment is noted in the table below, item No. 3.
2	B. F. & F.	0	2	2	2,100	32	Collision at end of double track, due to a false light in the switch. The lamp man had put the lamp on the switch stand in the wrong position. The station operator is held at fault for not discovering the lamp man's error.
3	B. P. & F.	2	7	2	2,300	56	Despatcher sent eastbound train over westbound track without first clearing the track of other trains. (See note in text.)
4	R. P. & F.	0	16	2	2,400	28	Passenger train (9 p. m.) ran into rear of wrecking train; engineman of passenger acted on a block signal which was cleared for the wrecking train. The signalman was held at fault for not promptly putting the signal in the stop position after the passage of the front end of the wrecking train. The passenger engineman was also at fault for running too fast within yard limits.
5	B. F. & F.	0	2	2	3,634	57	Eastbound freight (2:40 a. m.) approached coaling station not under control; engineman, conductor and front brakeman asleep.
6	B. P. & F.	0	43	2	3,745	2	Operator failed to deliver order. Conductor and engineman also at fault for not reporting at office for orders.
7	B. F. & F.	0	3	2	6,165	9	Conductor and engineman of northbound disregarded a despatcher's order on the assumption that it would be impossible for the southbound train to travel at a certain speed; also the despatcher annulled a "wait order" without notifying the train for whose benefit it had been made. (5 a. m.)
8	R. F. & F.	1	23	4	6,775	4	Careless running after passing automatic block signal at "stop."
9	B. F. & F.	1	3	2	7,000	50	Engineman of northbound light engine ran past meeting point. (See note in text.)
10	B. F. & F.	1	0	2	7,500	7	Extra train northbound (2:30 a. m.) encroached on time of southbound; should have stopped at a blind siding; men claim to have lost their bearings. The superintendent says it would have been easy to locate the siding.
11	B. F. & F.	0	6	2	9,500	34	Failure of operator to deliver order. He accepted order to be delivered to conductor whose train was on siding, having told despatcher that the conductor was held, but the train started while the operator was busy, and he was unable to deliver the order, though he tried to do so. (10 p. m.) Age of operator, 21 years; in the service 4 months as station helper and 7 months as operator.
12	B. F. & F.	0	6	2	10,047	37	Despatcher (11:43 a. m.) sent order to train No. 30 to run 20 minutes late. The succeeding despatcher (12:06 p. m.) sent this order to an opposing train and made the time 30 minutes instead of 20; this train used 10 minutes too much of the time of train No. 30, and this caused the collision.
13	B. P. & P.	0	34	2	12,500	11	Mistake in observing lights of fixed signals at meeting point. (See note in text.)
14	B. F. & F.	0	2	2	13,600	33	Nondelivery of orders. (See note in text.)
15	B. F. & F.	1	2	2	13,978	8	Extra freight approached station not under control. (10:50 p. m.)
16	R. P. & F.	1	5	1	15,200	1	Freight followed passenger train from passing track too closely, disregarding prescribed 5-minute time interval and running at excessive speed. Passenger train ahead had slackened speed because of a cow on track. Freight ran into rear of passenger train.

No.	Class.	Kind of train.	Killed.	Injured.	Damage to engines, cars & roadways.	Reference to record.	Cause.
17	R. F. & F.	0	0	16,975	29		Double-header freight train not kept under control on descending grade; misunderstanding between enginemen as to which should manage the air brakes.
18	B. F. & F.	2	5	17,850	6		Eastbound train disregarded order to reach B by 2:30 a.m. (See note in text.)
a19	B. P. & F.	2	2	30,000	38e2		Southbound ran past meeting point. (See note in text.)
a20	B. P. & F.	3	1	10,000	38e3		Trailer broke away and ran back down grade. (See note in text.)
Total collisions.		15	163	\$192,638			
<i>a Collisions 19 and 20 occurred on electric roads.</i>							
DERAILMENTS.							
1	D. P.	0	10	\$2,055	24		Switch (at electro-pneumatic interlocking) thrown under moving train. Leverman carelessly moved the switch lever too soon, and the detector bar broke, allowing the switch rails to be moved.
2	D. F.	3	6	2,825	23		Misplaced switch. (See note in text.)
3	D. P.	0	43	8,140	65		Washout (7:50 p.m.) due to 36-inch pipe culvert becoming clogged with driftwood during an unprecedented rainfall. This derailment was followed by a collision. (See item No. 1 in collision table.)
4	D. P.	1	1	8,500	63		Excessive speed on curve due to false clear signal at interlocking, where a switch was undergoing repairs. Signalman and signal repairman held responsible for display of wrong signal.
5	D. P.	0	24	4,700	43		Track being repaired; a flagman of three months' experience sent out to warn all trains; omitted to stop an extra passenger train, assuming that, in accordance with custom, the track foreman would have the track in safe condition for a passenger train; that his function was to stop freight trains only. The engineman of the passenger train is held at fault for not obeying the speed limit rule in force at this place. The passenger was an extra.
6	D. F.	0	0	5,850	64		Excessive speed due to error of judgment of engineman in handling air brakes on a descending grade of 110 feet to mile; ran off derailing switch.
7	D. P.	0	28	6,000	41		Defective joint; wreck took fire from stove in baggage car; fire spread by gas which escaped from broken pipes.
8	D. P.	0	31	6,130	42		Track not in good surface. Speed 45 miles an hour. Tender the first vehicle to jump the track.
9	D. F.	2	1	9,819	50		Misplaced switch. Agent had neglected to put on lamp as night approached; the crew of the preceding train neglected to report absence of the lamp. The superintendent also holds that in view of the absence of the lamp the engineman should have slackened speed more than he did.
10	D. F.	0	1	9,872	18		Broken rail; fresh break, no fault in manufacture. Wreck took fire from the fire box; oil from the ruptured tender flowed around the fire box, spreading the flames.
11	D. P.	0	29	17,100	49		Loose engine wheel; speed, 40 miles an hour.
12	D. F.	0	0	32,100	66		Long pieces of structural iron on platform car were not sufficiently braced, and the load, shifting on its bearings while the train was passing through a bridge, struck the truss, and the bridge (100 feet long) was knocked down; and several cars were wrecked.
13	D. F.	1	2	35,800	39		Engineman ran past flagman, who warned him to stop on approaching a point where the track was being repaired. The engineman (who was killed) had been using intoxicating liquor.
14	D. P.	3	25	55,000	25		Rail joint in track maliciously loosened.
15	D. F.	0	0	3,000	26		Unbalanced load. (See note in text.)
Total derailments ...		10	201	\$196,891			
Total collisions and derailments		25	364	389,524			

Collision No. 3, between a westbound work train and an eastbound passenger train, was due to lack of care on the part of a despatcher, a conductor and a telegrapher. A work train had

the right to use both main tracks between B and C. When it was time for an eastbound passenger train to leave B for C, the work train, in order to clear the eastbound track, proceeded to C and from there went back westward on the westbound track. The operator at C omitted to report this movement of the work train to the despatcher, and the despatcher, believing the work train to be still on the eastbound track, ordered the passenger train to proceed from B to C on the other track. The flagman of the work train had stopped the passenger train, but had not informed its conductor that the work train had gone to C for the purpose of crossing over to the westbound track, being himself ignorant of this movement. The work train, moving westward, and the passenger train, moving eastward, collided 5 miles east of B. The despatcher is held blameworthy for not seeing that the westbound track was clear before he allowed any eastbound train to move over it, and the conductor of the work train is blamed for not more fully and carefully instructing his flagman; and the telegrapher at C is blamed for not giving prompt notice to the despatcher when the work train came to his station. This telegrapher at C had been in that position seven weeks. The other persons concerned were men of experience.

Collision No. 9, in which 1 person was killed and 3 were injured, was between an engine, without train, running north, and a freight train running south. The engineman in charge of the engine northbound, on reaching S, where he was to meet the southbound, according to an order which had been received from the despatcher, received from the operator at S another copy of the same order, which had been sent to that station to make sure that neither train should go past that point. He did not read this order carefully, or at least not with sufficient care, and assumed that he had received a new order authorizing him to go forward to the next station. He read the order (incorrectly) to the fireman, but the fireman did not read it for himself. When the engine started from the station, the operator assumed that it was the intention of the engineman to go forward a short distance and then set back into the side track and wait for the southbound train; and, because of this assumption, he took no measures to recall the engine.

Collision No. 13, injuring 34 persons, was due to a mistake in observing a signal at the end of a double track. Train No. 3, westbound, should have stopped before passing from the double track to the single track, to meet train No. 2, eastbound; but No. 3 approached at uncontrollable speed and ran about 75 feet beyond the switch. The eastbound train approached at the same moment, and in the resulting collision the mail car of the eastbound train was knocked off a bridge, falling 50 feet to the street below; and the baggage car, which was next behind the mail car, was lifted in such a way that it telescoped the passenger car next behind it. Most of the victims were in this passenger car. Train No. 3 approached the meeting point on a curve to the left and the fireman of the leading engine of this train (which was a helping engine), seeing the green light of the switch, which indicated that the switch was in position for the eastbound train, mistook it for the green light of the semaphore signal which would indicate all clear for the westbound train; he therefore called to the engineman that the road was clear.

As soon as the train had run far enough to enable the engineman to see the semaphore, he saw that the light was not green and applied the brakes, but not in season to prevent the collision. The fireman of the helping engine was 21 years old, and had been in the service of the road about eight months.

Collision No. 14 was due to the neglect of two telegraphers to deliver orders and to bad judgment on the part of an engineman. Westbound extra 9, running from M to A, B, C, D, E, F, etc., left M at 5:45 a.m.; A at 5:59, and arrived at B at 6:16 a.m. At B this train should have stopped short of the switches to keep out of the way of eastbound train 8, which was running on the westbound track from F to B. The operator at M had neglected to deliver to extra 9 the order authoriz-

ing this movement. He had fixed it in a hoop, expecting that the train would pass without stopping; but before the train arrived he had other duties to perform in connection with other trains, and while so engaged the conductor of train 9 came into his office and the operator told him that there were no orders.

Shortly after he gave the train a clear block signal and the train proceeded. On arriving at B this train found the signals against it; but the engineman sounded the whistle signal calling for the block signal, and the operator gave him a proceed signal and delivered to him a message telling him to move his train for-

TABLE A.—Summary of casualties to persons, year ending June 30, 1910.

	Passengers (a and b).		Persons car- ried under agreement or contract (b b).		Total (a, b, and b b).		Trainmen.		Trainmen in yards.		Yard train- men (switch- ing crews).		Other em- ployees		Total em- ployees.		Total persons reported.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Collisions.....	57	3,898	21	530	78	4,428	216	1,765	45	657	44	468	50	443	355	3,333	433	7,761
Derailments.....	70	2,601	17	345	87	2,946	188	1,272	9	138	22	191	34	267	253	1,868	340	4,814
Miscellaneous train accidents, including loco- motive boiler explosions.....	52	122	20	52	142	75	1,086	7	232	3	139	22	133	107	1,590	159	1,732	
Total train accidents.....	179	6,621	38	895	217	7,516	479	4,123	61	1,027	69	798	106	843	715	6,791	932	14,307
Coupling or uncoupling.....							60	927	40	520	99	1,426	7	112	206	2,985	206	2,985
While doing other work about trains or while attending switches.....							51	9,296	23	3,050	42	3,608	41	2,286	157	18,240	157	18,240
Coming in contact with overhead bridges, structures at side of track, etc.....	2	27	1	6	3	33	57	644	19	241	15	424	5	68	96	1,377	99	1,410
Falling from cars or engines or while getting on or off.....	127	2,748	10	85	137	2,833	231	5,271	80	2,306	138	4,061	137	1,558	586	13,196	723	16,029
Other causes.....	54	3,010	10	364	64	3,374	178	891	102	512	111	551	1,232	24,075	1,623	26,029	1,687	29,403
Total (other than train accidents).....	183	5,785	21	455	204	6,240	577	17,029	264	6,629	405	10,070	1,422	28,099	2,668	61,827	2,872	68,067
Total (all classes).....	362	12,406	59	1,350	421	13,756	1,056	21,152	325	7,656	474	10,868	1,528	28,942	3,383	68,618	3,804	82,374
TOTALS FOR PRECEDING YEAR.																		
Collisions.....	72	2,716	22	317	94	3,033	145	1,266	39	467	20	284	44	345	248	2,362	342	5,395
Derailments.....	30	2,450	7	267	37	2,717	171	996	11	128	14	125	31	199	227	1,448	264	4,165
Miscellaneous train accidents, including loco- motive boiler explosions.....		96	.....	19	.....	115	36	727	4	177	2	94	3	69	45	1,067	45	1,182
Total train accidents.....	102	5,262	29	603	131	5,865	352	2,989	54	772	36	503	78	613	520	4,877	651	10,742
Coupling or uncoupling.....							49	735	36	463	67	1,086	9	69	161	2,353	161	2,353
While doing other work about trains or while attending switches.....							28	7,147	23	2,346	10	2,610	32	2,212	93	14,315	93	14,315
Coming in contact with overhead bridges, structures at side of track, etc.....	2	32	4	2	86	54	601	9	243	7	334	6	51	76	1,229	78	1,265	
Falling from cars or engines or while getting on or off.....	129	2,991	8	85	137	3,076	196	3,947	74	1,994	107	2,950	104	1,368	481	10,259	618	13,335
Other causes.....	52	2,820	13	319	65	3,139	110	817	74	384	86	379	855	17,191	1,125	18,771	1,190	21,910
Total (other than train accidents).....	183	5,843	21	408	204	6,251	437	13,247	216	5,430	277	7,359	1,006	20,891	1,936	46,927	2,140	53,178
Total (all classes).....	285	11,105	50	1,011	335	12,116	789	16,236	270	6,202	313	7,862	1,084	21,504	2,456	51,804	2,791	63,920

TABLE B.—Casualties to passengers and employees, years ending June 30.

	1910.		1909.		1908.		1907.		1906.		1905.		1904.	
	Killed.	Injured.												
<b>Passengers:</b>														
In train accidents.....	217	7,516	131	5,865	165	7,430	410	9,070	182	6,778	350	6,498	270	4,945
Other causes.....	204	6,240	204	6,251	241	5,215	237	4,527	236	4,407	187	3,542	150	3,132
<b>Total.</b>	<b>421</b>	<b>13,756</b>	<b>335</b>	<b>12,116</b>	<b>406</b>	<b>12,645</b>	<b>647</b>	<b>13,597</b>	<b>418</b>	<b>11,185</b>	<b>537</b>	<b>10,040</b>	<b>420</b>	<b>8,077</b>
<b>Employees:</b>														
In train accidents.....	715	6,791	520	4,877	642	6,818	1,011	8,924	870	7,483	798	7,052	844	6,990
In coupling accidents.....	206	2,985	161	2,353	239	3,121	302	3,948	311	3,503	243	3,110	278	3,441
Overhead obstructions, etc.....	96	1,377	76	1,229	110	1,353	134	1,591	132	1,497	92	1,185	116	1,210
Falling from cars, etc.....	588	13,196	481	10,259	668	11,735	790	12,565	713	11,253	633	9,237	700	9,371
Other causes.....	1,780	44,269	1,218	33,066	1,699	33,317	2,116	35,661	1,772	31,788	1,495	24,842	1,429	22,254
<b>Total.</b>	<b>3,383</b>	<b>68,618</b>	<b>2,456</b>	<b>51,804</b>	<b>3,358</b>	<b>56,344</b>	<b>4,353</b>	<b>62,689</b>	<b>3,807</b>	<b>55,524</b>	<b>3,261</b>	<b>45,426</b>	<b>3,367</b>	<b>43,266</b>
<b>Total passengers and employees.....</b>	<b>3,804</b>	<b>82,374</b>	<b>2,791</b>	<b>63,920</b>	<b>3,764</b>	<b>68,989</b>	<b>5,000</b>	<b>76,286</b>	<b>4,225</b>	<b>66,709</b>	<b>3,798</b>	<b>55,466</b>	<b>3,787</b>	<b>51,343</b>

TABLE C.—Collisions and derailments; damage to cars, engines, and roadway, years ending June 30

	1910.				1909.				1908.			
	Num- ber.	Loss.	Killed.	Injured.	Num- ber.	Loss.	Killed.	Injured.	Num- ber.	Loss.	Killed.	Injured.
Collisions, rear.....	1,311	\$1,398,763	119	2,324	859	\$933,375	83	1,556	1,397	\$1,298,044	88	1,742
Collisions, butting.....	695	1,514,381	194	3,008	485	874,729	159	1,878	795	1,473,618	210	3,143
Collisions, train separating.....	418	164,883	5	197	386	146,067	6	159	436	165,850	4	214
Collisions, miscellaneous.....	3,437	1,551,252	115	2,236	2,681	1,154,520	94	1,802	3,735	1,697,687	112	2,613
<b>Total.</b>	<b>5,861</b>	<b>4,629,279</b>	<b>433</b>	<b>7,765</b>	<b>4,411</b>	<b>3,108,691</b>	<b>342</b>	<b>5,395</b>	<b>6,363</b>	<b>4,635,199</b>	<b>414</b>	<b>7,712</b>
Derailments due to defects of roadway, etc.....	1,115	914,642	42	1,337	991	708,658	25	1,195	1,426	1,088,261	46	1,598
Derailments due to defects of equipment.....	2,734	2,227,352	40	636	2,362	1,875,646	28	631	2,796	2,176,194	37	831
Derailments due to negligence of trainmen, signalmen, etc.....	377	238,843	23	311	307	186,768	25	329	406	273,038	31	376
Derailments due to unforeseen obstruction of track, etc.....	350	464,414	58	825	331	444,308	79	486	381	562,441	67	590
Derailments due to malicious obstruction of track, etc.....	66	165,185	18	227	51	93,037	21	166	90	144,903	24	215
Derailments due to miscellaneous causes.....	1,276	1,184,243	159	1,478	1,217	1,063,095	83	1,334	1,572	1,303,624	109	1,512
<b>Total.</b>	<b>5,918</b>	<b>5,194,679</b>	<b>340</b>	<b>4,814</b>	<b>5,259</b>	<b>4,371,512</b>	<b>261</b>	<b>4,141</b>	<b>6,671</b>	<b>5,548,461</b>	<b>314</b>	<b>5,122</b>
<b>Total collisions and derailments.....</b>	<b>11,779</b>	<b>9,823,958</b>	<b>753</b>	<b>12,579</b>	<b>9,670</b>	<b>7,480,203</b>	<b>603</b>	<b>9,536</b>	<b>13,034</b>	<b>10,183,660</b>	<b>728</b>	<b>12,834</b>

ward so as to clear the cross-over track for eastbound train No. 10. In this message he stated that the eastbound train had left E at 5:55 a.m., but that it could not reach B until after No. 10 was out of the way. He did not say that the eastbound train was on the westbound track, for he assumed that this information had already been given to the westbound train. According to the rules, however, he should have delivered to extra train 9 a copy of the order which was neglected at M. Although he had cleared the block signal to allow extra 9 to pass beyond his cross-over switches, he had not secured the block from D.

The engineman of train 9, a man of long experience, acknowledged that he did not understand the meaning of the message delivered to him by the operator at B, and he is held at fault for not stopping his train and securing an explanation. Having had no orders from the despatcher, and having received a clear block signal, he proceeded from B westward and met the eastbound train near C. At the time of the collision each train was moving about 25 or 30 miles an hour. After extra train 9 left B the operator there informed the despatcher, and it was then discovered that the order giving the eastbound train the right to the westbound track had not been delivered. The operator at B telephoned to the agent at C, who was at his house, and this agent tried to stop the eastbound train, but was a few seconds too late to do so. The operator at M was 23 years old and had been in the service three months. The operator at B was 22 years old and had been in the service two months. The despatcher is charged with exercising poor judgment in arranging for the meeting of extra 9 and another westbound train at B with eastbound train No. 10 after having given eastbound train 8 the right to use the wrong track from F to B. This despatcher is 27 years old and has been an operator about five and one-half years, but he had been employed as despatcher only about four weeks.

Collision No. 18, occurring about 2 a.m., was due either to the fault of the eastbound train in failing to send forward a flagman when it was found impossible to reach B in season to clear the time of the westbound as given in a telegraphic order, or to carelessness on the part of the westbound train in passing B before the time, as fixed in the order, to which it was required to wait at that station. The conductor and the engineman of the eastbound train were both killed, and the stations at which the time was recorded are so far apart that it is impossible to check with satisfactory accuracy the statements as to the times of the two trains. The flagman of the eastbound train was making his first trip in the service of the company and had no watch. The surviving members of the crew of the eastbound train can give no satisfactory testimony. The preponderance of evidence seems to indicate that the eastbound train was at fault.

Collision No. 19, which occurred at about 3 a.m., and in which two persons were killed, was between a southbound electric car drawing two cars of freight and a northbound electric sleeping car. The wreck took fire from some cause not discovered, and its combustible portions were entirely burnt up. The two freight cars were loaded with whisky, which may have been ignited from one of the trainmen's lanterns. The passengers in the sleeping car, of whom there were five, escaped uninjured. The southbound car had orders to stop at L to meet the northbound, but it ran a short distance past the meeting point. The reason for this disregard of orders cannot be determined, as it was the crew of this train—conductor and motorman—who were killed. The conductor had been in the service of the company two and one-half years and the motorman one year.

Collision No. 20 was due primarily to the failure of a coupling. A "trailer" attached to an electric car ascending a steep grade broke away and ran back down the grade a short distance, when it collided violently with a following passenger car. Two passengers were killed. The electric car and the trailer were not equipped with continuous brakes and there was no man on the rear car; and the men on the leading car did not discover that

the cars had parted for some little time after the breakage occurred.

Derailment No. 2, caused by a passenger train running at high speed into a turn-out because of a switch having been left misplaced, was due to a misunderstanding between a conductor and a telegraph operator (signalman), and also to misunderstanding and carelessness on the part of two operators.

A westbound freight train left S at about 5 a.m. The conductor, contrary to the regulations, requested the signalman at the station to close the switch after the train should have passed out of the side track. The conductor, after having got some distance away from the station, saw that the switch had not been closed, and so, on arriving at V, he requested the telegrapher there to communicate with S and make sure that his request had been complied with. The telegrapher at V, speaking to S, said "Did you close the —," when he was interrupted by S, who said "I certainly did." The telegrapher at V repeated to the conductor this partial question and the reply to it. This reply having been accepted as satisfactory, an eastbound passenger train was allowed to proceed from V to S, and, the switch having been left unchanged, this train ran into the side track and was derailed because of the sharpness of the curve, which was safe only for low speed. The foregoing statement as to the conversation over the wire is that which is given by the telegrapher at V. It is denied in many details by the signalman (telegrapher) at S. The man at S also disputes some of the statements of the conductor in regard to what was said when, as reported by the conductor, the original request was made to close the switch.

The derailed engine was overturned and fell against two boarding cars on a sidetrack, killing two and injuring four workmen who were preparing breakfast in the cars.

The signalman at S was 19 years old and had been in the employ of the road eight months; and the signalman at V was 25 years old and had been in the service three years.

Derailment No. 15 was due to the shifting of a load of steel bridge girders. These girders, very long, covered the length of three open cars, and as the train entered a 6 degree curve at a speed of about 15 miles an hour, the load shifted to one side sufficiently to greatly lighten the load on the other side; and in consequence of this one of the wheels on the outside of the curve rode over the rail. The shifting of the girders was made possible by the breakage of one of the bolts which held them in place.

#### Electric Railways.

The statistics of electric railways show that during the quarter under review, three passengers and five employees were killed and 312 passengers and 23 employees were injured in train accidents, and that the totals, including other accidents, were seven passengers and 12 employees killed and 649 passengers and 106 employees injured. The total number of collisions was 33; damage, \$54,187; total derailments, 49 and damage, \$59,547.

#### YEARLY TABLES.

The total number of casualties for the year was 86,178 (3,804 killed and 82,374 injured), which includes a small percentage, which did not appear in the quarterly bulletins, the reports from which they are taken having been received after the bulletins were printed.

The totals in Tables A and B for the year ending June 30, 1910, include the aggregate of the four quarterly bulletins; but bulletins 34, 35 and 36 (the last three) do not include accidents on electric railways; so that to make comparison with preceding years the figures should be increased as follows:

	Passengers		Employees		Total	
	Killed.	Injrd.	Killed.	Injrd.	Killed.	Injrd.
Table A	421	18,756	3,883	68,618	3,804	82,374
Electric roads, Bulletins 34, 35, and 36	29	1,759	35	307	64	2,066
Total	450	15,515	3,418	68,925	3,868	84,440

The principal yearly tables are those lettered A, B and C. These are given herewith.

## TRACING FREIGHT SHIPMENTS.\*

BY W. S. MELLEN,  
Traffic Manager, Heath & Milligan Manufacturing Co.

In business, if we lessen the correspondence we are to take care of, we feel that we are economizing; and, further, if we lessen the correspondence of those we deal with, outside of their orders for what we have to sell, we feel as if both sides of the correspondence field have been brought nearer to practical economy.

In the transportation of freight about the United States there has grown a great evil, so nearly absolutely useless that one wonders why the tracing of freight shipments is so generally practiced.

There are several reasons why a shipment does not reach the purchaser as quickly as the purchaser would desire. The first reason, very often, is that the purchase is made after the article is urgently needed, and another reason might be a delay in the mails, causing the order to be slow in arriving at its point of supply. It is possible that a question of the credit of the buyer may be involved, causing delay in the filling of the order. There may be congestion in the office where the purchase is made, and the order delayed there; there may be congestion in the factory or ware-rooms; there may be a shortage of supply of portions of the order; the order itself may be misplaced.

But assuming that all of the above has not occurred, the order has not been delayed in any way and is not wanted in a hurry. There is yet reason to consider the intricacies the shipment goes through to get to its destination. It is one thing to put some money and a bit of paper into a small receptacle strung on a wire with a spring behind it, as is seen in many stores, where they transmit the cash from sales counter to cashier; pull a trigger and see it go direct to its destination; and it is another thing to deliver a small shipment to the railway station of a large city, to be mixed up with a great variety of other shipments, then sorted out, placed in the proper cars, they in their turn to be taken to the classification yards, and the cars themselves assorted out, before they are ready to start on their journey. It means there is much to be done after the railway has received the shipment, but before the shipment is actually on its way to its destination.

A customer either wires or writes, calling attention to the fact that his order placed a few days before has not arrived, and please trace or wire trace. Sometimes these requests are made at the same time the order is given.

As soon as the firm receiving the order receives the request to trace or wire trace, they have someone in their employ make an extra copy of the bill of lading or shipping ticket—that is, after the shipment has been made this is sent to the local or commercial office of the transportation line the shipment moves over. Sometimes this is followed by one or more repeats of the same request to trace the same shipment.

In the meantime, what is the shipment doing? It is traveling on its journey unconscious of the great hullabaloo behind it to hurry it to its destination. It is deaf and it trundles on its way no faster and no slower, because being traced. Why?

Because transportation lines are well organized, have an immense amount of freight to handle and apply the best systems thought out to giving despatch service on every shipment they handle. No one shipment can be taken out of its orderly place and given special transportation to speed it on its way because someone is aching to get it. The idea of that happening is absurd. If one stops to think about it, then, why trace? Because you are in a hurry, it doesn't hurry the shipment, but makes a lot of worry, work and useless correspondence for the purchaser, seller and transportation lines involved.

When a shipment is missing and will not check up with the way-bill, the transportation lines do some looking for it, because if they have received for the shipment and cannot deliver it they must pay for it.

It is reasonable when a shipment has not arrived in a reasonable length of time, and has been unreported for a long enough time to be evident that it is astray or lost, that it should be industriously traced, and the transportation line involved urged to use its best efforts to deliver the shipment before a claim is filed for the loss.

When one desires to know what time is consumed between starting and finishing point, a tracer will bring that information in the course of time.

What happens when you send a railway office a request to trace a shipment? It is one of many, maybe hundreds, that are arriving at the same office daily, and as they come in they are placed at the bottom of a stack of others; the tracing clerk takes the top one, looks up the way-bill reference and makes inquiry at point of origin and destination as to time of starting and delivery; all of this takes much time and causes a lot of research work on the part of the employees of the transportation line involved. In the course of time the person requesting tracing receives a letter stating the shipment arrived at its destination on a certain date. This information is from two weeks to two months getting around, and only tells one the date the shipment arrived, if it did arrive, but the shipment moved no faster, for it would be impossible for it to move faster, in spite of all of the worry, work and anxiety brought out by the request to trace. In this connection there is little thought given to the immense amount of expense placed on the transportation lines by the useless tracing, which someone must pay for.

## ELECTRIC LOCOMOTIVE FOR FREIGHT AND SWITCHING SERVICE.

The Transit Development Co., a subsidiary of the Brooklyn Rapid Transit, has placed in service an electric locomotive which was designed for use in switching and freight service over the Brooklyn Rapid Transit lines and was built by the General Electric Co. and the American Locomotive Co. jointly. The rapidly increasing demand for freight service over the Brooklyn lines and the peculiarities of this service have demanded a locomotive having several special features. The collection of heavy freight from railway terminals and docks and the occasional short, sharp grades encountered, particularly along the water front, have necessitated a heavy type of locomotive, while the distribution of freight to shops and factories as far distant as South Brooklyn and Coney Island, and the requirement that this must not interfere with passenger service, made it imperative that the locomotive should be capable of operating at high speed. To fulfill these requirements it was essential that it should be more heavily motored than one designed for ordinary switching service.

The trucks are of the M. C. B. equalized type, with double elliptic bolster springs and swing bolster, all wearing parts being interchangeable with similar trucks under Brooklyn Elevated motor cars, except the springs, equalizers and such other parts as have required a heavier construction on account of the greater weight to be carried.

The locomotive platform is constructed of longitudinal sills of 10-in. channels and is fitted with cast iron end frames and heavy built up bolsters. The platform is squared and braced by heavy floor plates extending the full width of the locomotive and riveted to the longitudinal sills. The locomotive has been designed for a weight of 55 tons, and the ballast required to bring it up to this weight consists of 10 x 2-in. bars running the entire length of the platform, notched over the bolster plates and bolted to the longitudinal sills.

The cab consists of a main operating cab in the center of the platform, with auxiliary end cabs and side platforms extending out toward the ends of the locomotive. This gives an extended view in all directions to the operator from his operating seat, and on this account was preferred to the box type used on previous Brooklyn Rapid Transit locomotives.

The locomotive is furnished with high-power motors, the equipment consisting of four GE-212-B motors. The GE-212 is

\*From an article in the *Paint and Varnish Record*.

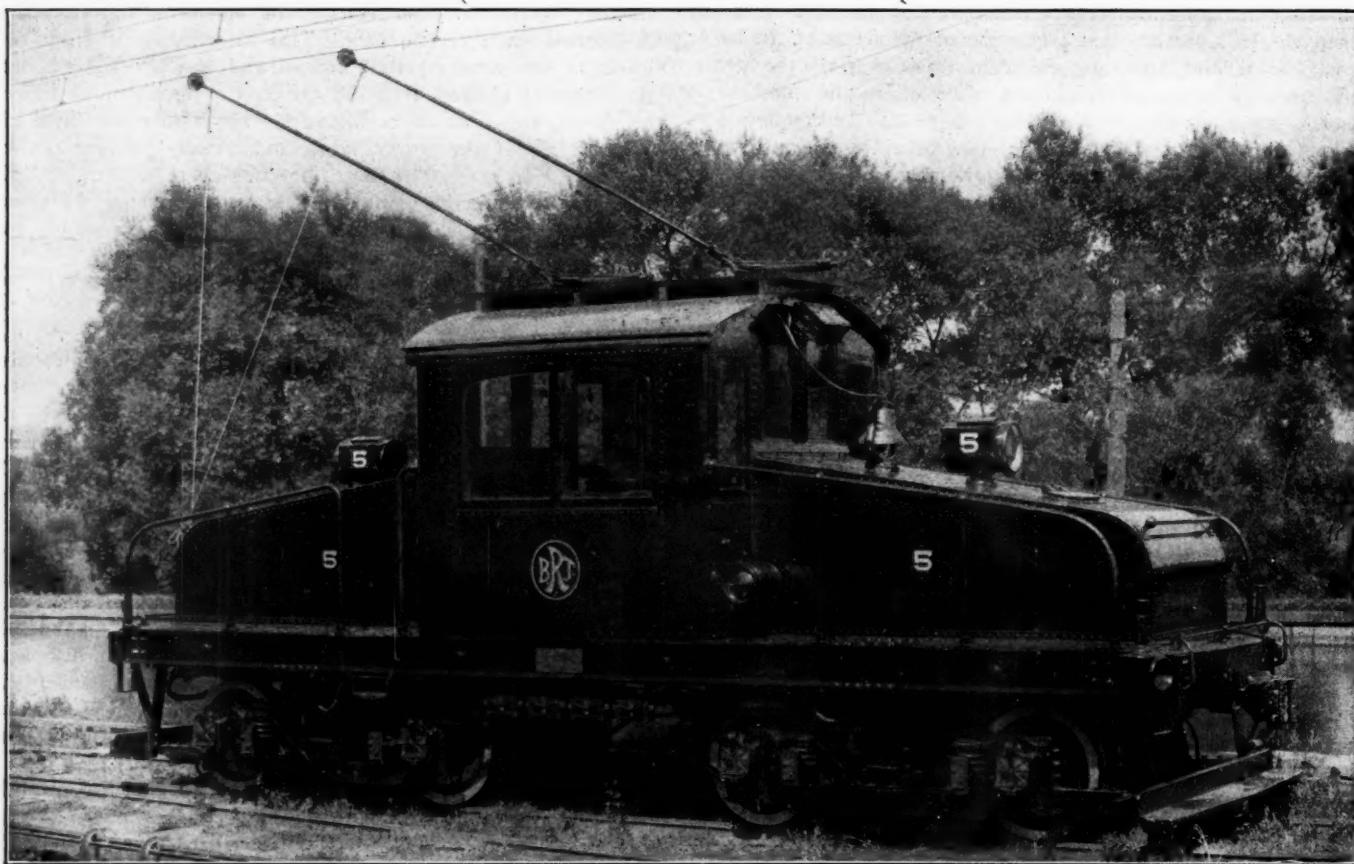
a commutating pole motor, with a rating on the standard one-hour basis of 225 h.p. These motors have demonstrated their satisfactory operation under severe fluctuation of load and voltage and are needed in the present case in order to meet the requirements presented by heavy tractive effort under starting conditions and high speeds upon the level. The locomotive is capable of exerting a tractive effort of 16,880 lbs. at 20 m.p.h. at the one-hour rating of the motors; or of maintaining a tractive effort of 6,000 lbs. at a speed of 30 m.p.h. In other words, it is capable of operating a 500-ton trailing train on 2 per cent. grades or of pulling the same train at a maximum speed of 30 m.p.h. on the level.

Sprague General Electric type M control has been furnished, which provides three combinations of motors, with a total of eighteen steps. Such a control is demanded by the conditions of service because a high speed is required for level running with through freight and an economical slow speed for heavy switching work. The transfer from one combination of motors

#### FOREIGN RAILWAY NOTES.

As a result of borings in the district of Talcahuane, in Chili, large coal beds are said to have been discovered. It is estimated that the beds will yield 150,000,000 tons.

The railway employees in France have a national "syndicate" or union, with branches on each of the six great stems. The secretary of that branch which includes the State Railway employees issued a circular instructing the men on the conduct to be followed in case of a strike. If all the employees should not join in the strike, as soon as one is declared, bodies of resolute members of the union must be formed at all important points, determined to stop the running of trains, cost what it may. They must include those familiar with the complications of traffic, and able to select the weak points, and to disable rolling stock, etc., by removing indispensable parts. They must



Electric Locomotive for Freight and Switching Service on the Brooklyn Rapid Transit Lines.

to another has been arranged in connection with the rheostat steps so as to secure a uniform gradation of tractive effort throughout the entire range of control.

Third rail shoes and trolley poles are arranged to collect current either from a third rail or from an overhead trolley, as demanded by the equipment of the various Brooklyn elevated and surface lines. Air compressors are mounted in the main cab. All wiring is in conduit and so arranged as to give the interior of the cab a neat appearance. The following table gives the principal dimensions of the locomotive:

Type of motors.....	GE-212-B
Number of motors.....	4
Gear ratio.....	3.37
Number of driving wheels.....	8
Diameter.....	34 in.
Total wheel base.....	22 ft. 2 in.
Rigid wheel base.....	6 ft. 8 in.
Length inside knuckles.....	31 ft. 1 in.
Length main cab.....	8 ft. 0 in.
Length of cab over all.....	27 ft. 0 in.
Total weight.....	110,000 lb.
Traction effort at 25 per cent. coefficient.....	27,500 lb.
Speed at maximum tractive effort.....	17 m.p.h.

look out for the soldiers, who will occupy the stations at the first alarm. All comrades must cherish hatred against those parasites of society, the capitalist class, and spread among other workmen contempt for legal and parliamentary action, and preach boldly the use of extra-legal means; direct action, injury to the service, anti-militarism and anti-patriotism.

An officer of the transportation department of the Russian empire has been trying to learn if it would not be possible to have express trains run a little faster. On the great Nicholas Railway, 400 miles long, between St. Petersburg and Moscow, the fastest train heretofore has been 11 hours on the road. Trials have been made, and it is now announced that one train will hereafter make the journey in nine hours; but doubts are expressed whether, with the present condition of the road, such speed will be safe. As each of the terminal cities has a population of more than a million, it would seem proper to make the road fit for such speed, if it is not already.

## General News Section.

The enginemen of the Cincinnati, Hamilton & Dayton have been granted an increase of 6 per cent. in wages, effective November 1.

The Burlington has granted an 8 per cent. increase in the wages of its telegraphers. The increase affects 2,265 men and amounts to \$110,000 annually.

At Toledo, Ohio, November 2, the grand jury, in the federal court, found indictments against the Hocking Valley railway, charging the company with illegal discrimination in favor of the Sunday Creek Coal Company. Indictments were also returned against the coal company.

The commission on the issue of railway securities and the capitalization of railways, of which Arthur T. Hadley is chairman, will, it is understood, begin a series of public hearings at Washington about November 28. The hearings will be held in the Senate office building.

The extension of the Hudson & Manhattan Tunnel railway northward from Twenty-third street to Thirty-third street, New York City, was put in operation November 10. A special train with a party of guests was run over the line last week. On the extension farther northward from Forty-second street and thence eastward to the Grand Central Terminal construction is to be begun next spring.

F. H. Clark, general superintendent of motive power of the Chicago, Burlington & Quincy, delivered an address before the students and faculty of the College of Engineering of the University of Illinois on November 3, his subject being "Problems of the Motive Power Department." Mr. Clark graduated from the University of Illinois with the class of '90.

Telephones have been introduced for train despatching on the Shasta division of the Southern Pacific, 291 miles; 206 miles of the main line between Ashland, Ore., and Red Bluff, Cal., and 95 miles on the branch from Weed, Cal., to Klamath Falls, Ore. The despatcher is at Dunsmuir, 98 miles north of Red Bluff, the southern terminal of the circuit. This entire circuit is composed of copper wire, metallic circuit, weighing 300 lbs. per mile.

The favorable incidents which are entered on the records of the employees of the Illinois Central, as published in the *Illinois Central Employees' Magazine*, include some things not often found in such records. A station agent and a signal maintainer discovered a brake-beam dragging under a car and stopped the train; a station helper discovered the defective condition of a tender truck while the train (No. 3) was standing at his station; a conductor discovered a broken arch bar in the truck of a refrigerator car; a brakeman is credited for quickly discovering that a car of his train was off the track, and a flagman received favorable mention for having discovered a broken rail.

The New York Chamber of Commerce, the Merchants' Association and a number of smaller organizations have sent communications to the New York State Public Service Commission, First district, asking that it defer the letting of contracts for the construction of the proposed tri-borough subways. The Chamber of Commerce, acting on the report of a committee headed by E. H. Outerbridge, asks a reconsideration of the plans on the ground that the cost of the proposed work is more than the city can reasonably bear. It is declared also that money should not be spent for construction until after more complete estimates have been made of the probable cost of equipment and operation.

The strike of express wagon drivers in New York city, Jersey City and Hoboken has been kept up throughout the past week, and, so far as the reporters can gather, the large express companies are seriously crippled in their collections and deliveries. The employment of new men has been hampered by a decision of the mayor of New York to the effect that every man driving an express wagon must have a license from the city; and licenses are granted only after some investigation of the character of the applicant. There has been but little violence during the past week, but innumerable cases of annoyance, and on Election Day

the large express companies, as well as the department stores (many of whose drivers either had been induced to strike or else refused to work because of danger), refrained from sending out any wagons. This was at the request of the police department of the city, many policemen being engaged at the voting places. Some of the express companies displayed on their wagons placards reading "Engaged in interstate traffic only," claiming that in interstate traffic the city could not exact licenses. The drivers of taxicabs also joined the strikers in considerable numbers, but some of the taxicab companies, as well as some of the department stores, came to agreement with the representatives of the teamsters' unions.

Losses by fire in the United States and Canada during the month of October, as tabulated by the *New York Journal of Commerce*, amounted to \$37,188,300, an unusually large sum, and the largest total for a month since the San Francisco conflagration. The forest fires of the Northwest contributed \$14,600,000 to this list. Without the forest fires, however, the total is still about \$5,000,000 more than for the same month in 1909. The very long list of fires causing a loss of \$10,000 or more includes the following items referring to railway property:

Tucson, Ariz., railway shops, locomotives and cars..	\$350,000
Norfolk, Va., railway ferryboat.....	50,000
Indianapolis, Ind., railway freight house.....	12,000
Memphis, Tenn., grain elevator.....	75,000
Southern Ontario, forest fires.....	600,000
Northern Idaho, forest fires .....	4,500,000
Montana, national forests .....	6,000,000
Northern Minnesota, forest fires.....	3,500,000
Jamestown, Cal., railway shops.....	10,000
Galveston, Tex., railway pier .....	155,000
Princeton, Ind., railway machine shop.....	400,000
Sterling City, Cal., railway roundhouse and dwellings	50,000
Hannibal, Mo., railway shops.....	100,000
Calumet, Mich., lake steamer.....	150,000
Charleston, S. C., railway freight house.....	25,000
Ellmore, S. C., railway platform and cotton.....	15,000
Topeka, Kan., railway storage yards.....	500,000
Newbern, N. C., railway freight depot.....	125,000

### Demurrage Bureaus.

For the recent withdrawal of important railways from demurrage organizations at Chicago, Buffalo and elsewhere three reasons are given, as follows:

1. The railways have on file with the Interstate Commerce Commission, and with the state commissions where required, tariffs covering demurrage rules, for the enforcement of which the railways are responsible.
2. Under uniform rules the statistics heretofore kept by car demurrage bureaus are no longer of any value.
3. The supervision and accounting necessary to see that the filed tariffs are complied with should be placed under the proper departments of the railway company.

These reasons do not appear to me to touch upon the central purpose of the bureaus, which has been to give uniform interpretation to the rules, assure each member that all the other members are "toting fair" in demurrage matters, and to act as an impartial adjuster of claims made by shippers and consignees.

Some of the car accountants used to argue that a considerable economy could be effected by giving them charge of demurrage rules, and abandoning the bureaus. This economy seems only to have considered the payrolls of the bureaus, and gave no heed to the joint and impartial service of the bureaus. It is being discovered now that there is but little economy even in that direction, but the cost to individual roads may be so distributed as to make it appear that a considerable economy has been effected.

It does not always appear to a railway to be to its best interest to enforce demurrage rules. And to say that shippers and consignees in the past few years have come to regard a demurrage rule as a beneficence, sounds very funny to a demurrage manager. Most of them think the penalty obnoxious, except in rare instances when it is applied to the other fellow. Talking generally, shippers will usually admit the reasonableness and the necessity for the demurrage rules; but undertake to collect a demurrage charge from them if you want to learn their real thought.

I have yet to meet a railway man or a shipper who says he

thinks the new order a good one. They all say that it appears to them to be a great mistake. Many of the railways that have followed in the movement have done so reluctantly. Governmental authority has given us the uniform demurrage code and now action is taken to destroy the organization best equipped to maintain uniformity.—*A. G. Thomason, in Wall Street Journal.*

**Negotiations Between Western Railways and Brotherhood of Engineers Broken Off.**

The representatives of the Brotherhood of Locomotive Engineers who have been negotiating with the officers of 60 Western railways for increases in wages have broken off negotiations, and on November 7 they announced that they would submit to a vote of the members the question of whether the officers of the brotherhood should be authorized to declare a strike. The vote will be canvassed in Chicago on December 10, and, it is said, will be the first of this kind that has been taken by the Brotherhood of Locomotive Engineers since the strike on the Burlington in 1888. The railways concerned are all (with a few exceptions, such as the eastern part of the Wabash) west of a line drawn north and south through Chicago. Practically all of the roads west of this imaginary line are involved. They have 136,000 miles of line, or about 53 per cent. of the total mileage of the country. The total number of members of the brotherhood on these roads is estimated at 33,000, but the total number of locomotive engineers employed by them is about 40,000. These negotiations have been in progress since September 26. The railways have been represented by W. B. Scott (Harriman Lines), chairman; A. W. Trenholm (C., St. P., M. & O.), F. C. Batchelder (B. & O. Chi. Term.), F. E. Ward (C., B. & Q.), G. H. Emerson (Great Northern), Grant Hall (Canadian Pacific), F. C. Fox (A., T. & S. F.), W. A. Durham (M., K. & T.), T. J. Foley (Illinois Central), and H. J. Simmons (El Paso & S. W.). The brotherhood was represented by Grand Chief Warren S. Stone and Assistant Grand Chiefs Cadle, Burgess, Kennedy, Mil's and Corrigan.

Before the negotiations were broken off the railways offered the enginemen increases which would have averaged 9½ per cent. and would have amounted in the aggregate to about \$3,600,000 a year for the 40,000 employees who would have gained by them. This would have been as high a percentage of increase as was awarded by State and Federal boards of arbitration last summer to the Western switchmen and firemen. Mr. Scott gave out a statement in which he said in part:

"The railway managers did not feel that in view of the present earnings of the roads there was any justification for their making such large advances in wages, except that the boards of arbitration had already awarded advances to the switchmen and firemen, and the managers felt that the engineers should be raised in the same proportion, although the net earnings of the railways involved were \$3,500,000 less in July and August, 1910, than in the same months of 1909. In this connection it should not be overlooked that in 1907, only a little over three years ago, the engineers were given increases in wages averaging 8½ per cent. If they had accepted the proposition of the railways their wages would have been made 18 per cent. more than they were a little over three years ago.

"About a week ago Mr. Stone asked the railway managers if they would agree to ask for mediation by Chairman Knapp, of the Interstate Commerce Commission, and Labor Commissioner Neill. The railway managers promptly replied that they were willing to submit the question to mediation. The next day Mr. Stone delivered to the railway managers an ultimatum. Mr. Stone was asked if he had withdrawn his mediation proposition. He said that he had not made any proposition; that he had merely asked if the railway officers would consent to mediation, and announced vigorously that he would not consent to mediation or arbitration on any of the questions involved."

When the committees first met, the representatives of the enginemen presented demands which would have involved increases averaging 27 per cent. These included an increase of 15 per cent. in the pay of road enginemen, 32 per cent. in the pay of switch enginemen and 75 per cent. in the pay of enginemen on Mallet locomotives. The railways recognized the equity of making certain readjustments on account of the increases that had been granted to other employees, as mentioned above. They asked that the demands of the engineers be modified, but this request was declined. The railway managers then offered increases ap-

proximating 6 per cent., which were less in percentage but equal in actual money to the advances that had been given to the firemen and switchmen. The enginemen rejected this and renewed their original proposition. The managers refused to consider this, and the enginemen made a modified proposition for an advance of 24 per cent. This being unsuccessful, too, they subsequently made a modified proposition for an advance of 18 per cent. The railway managers indicated that if the employees would make a proposition for an advance approximating 13 per cent. they would consider it. The enginemen then made a proposition which they claimed amounted to 13 per cent., but which really amounted to 16½ per cent. The managers then offered the advance of 9½ per cent., which was a split between the 6 per cent. they had offered and the 13 per cent. which the representatives of the enginemen claimed they were asking. The representatives of the enginemen rejected this proposition.

One of the points on which the managers and the enginemen differed most widely was regarding the differentials that should be established between the wages of the men on Mallet compounds and on other freight engines. The managers were willing to increase the differential between the pay on the two types of engines to 75 cents a day, but the employees insisted on a differential which would have made the pay of men on Mallets almost double that of those on other freight engines. The enginemen also insisted that the authority of their union be extended to matters relating to all kinds of power used on steam railways, and particularly over gasoline motor cars. The railway managers indicated a willingness to give the old enginemen preference when motormen were to be employed, but would not consent to making the positions of engineman and motorman entirely interchangeable.

Another point on which differences developed was regarding the amount of preparatory time that should be allowed enginemen for getting their engines ready for their runs. Enginemen are now required to be at their engines 30 minutes before leaving time. The committee wanted this time to be counted in the period during which they were on duty. They also demanded that all time during which they are delayed en route shall be counted as overtime. Of course, the reason for this is that the enginemen are paid on the mileage basis, and if a man ordinarily makes a run of 100 miles in two hours and a half, and on account of a delay of 30 minutes en route the length of time that he is out is increased to three hours they want him to be paid overtime for the extra 30 minutes. The managers refused to agree to pay for preparatory time, etc., except when the man actually worked more than the maximum number of hours constituting a working day.

**Electrification Estimates of B. & A.**

The Massachusetts legislature has for two or three years been considering whether it would not require the railways entering Boston to electrify their most congested lines, and the special commission which was appointed to attend to the matter has lately received tentative plans from the roads. The plans presented by the Boston & Albany, which are called "studies," are set forth at considerable length in the *Boston Transcript*. The officers of the Boston & Albany say now, as they said two years ago, that if they electrify their line they will have to carry the scheme at least as far as South Framingham, 22 miles, and that it will not pay; net receipts will be reduced. The *Transcript* does not claim to have authentic information as to these plans but its guesses appear to be based on what must have been quite detailed inspiration.

Of the 228 trains to and from Boston over that road, daily, about 65 per cent. begin and end their trips within the district which it is proposed to electrify. The New York Central, which controls the line and which has been using electric traction at New York for several years, would use direct current at Boston the same as at New York, but the art has made such progress since the New York lines were electrified that a current of 12,000 volts probably would be used. It is estimated that the Edison Company, with its enormous units of power, probably could furnish current to the Boston & Albany cheaper than it could itself generate the electricity in a power house of its own. On the four-track line from Boston to South Framingham, the passenger stations are all on the south side of the line and the local trains use the southernmost pair of these tracks; but in electrifying the line and increasing the speed and frequency of

trains, the westbound electric trains would probably be changed to the northernmost track, thus necessitating the establishment of duplicate platforms and buildings at each station, with overhead bridges, or passages beneath the tracks, for passengers crossing from one side of the line to another. It is not probable that the Boston & Albany would be willing to use the subway tracks in the South station, as to do this it would be necessary to cross the New Haven tracks at a point some distance out. Probably, also, it would be necessary to build a new overhead station at the Back Bay in place of the present outbound and inbound stations, which are separate one from the other.

#### Texas Opposition to Federal Regulation of Securities.

W. D. Williams, of the Texas Railway Commission, has written a letter to William E. S. Griswold, of the commission which was appointed by President Taft to investigate the question of federal regulation of railway securities, opposing the regulation of securities by the federal government. Mr. Williams says that the people of Texas have worked out a system of railway regulation and are operating it "reasonably well and fairly to the satisfaction of our own producers, consumers and middlemen." He continues:

"If there were no other reason—and there are many—against Federal jurisdiction of railway capitalization, it ought to be sufficient that it takes from Texas the benefit of its 20 years of struggle and effort and subjects it now to the hazard of some new and untried plan. It deprives it of its local control of a matter which vitally affects its local prosperity. It compels it to submit to methods which may and probably will be entirely unsuited to its local necessities. And most of all, with the expansion of Federal jurisdiction, our citizens who are eagerly interested in and entirely qualified for state and municipal affairs, who look at these things close at hand and can trace the effect of local politics in local business and upon the local welfare, find themselves deprived of their power, which is transferred to a distant and national governmental center, where their own wishes are unconsidered and they are themselves without political potency. Their interest in the public good dies and they come more and more to feel as a people who are without a country. More and more they turn their attention to striving for material gains alone and always, in which this unnatural growth of the Federal power continues, the value of our citizens becomes less and less. Wealth may increase, but liberty will surely decay."

#### Walker D. Hines on the Railway Situation.

Walker D. Hines, chairman of the executive board and general counsel of the Santa Fe, in a recent address at Topeka, Kan., said:

"We all recognize that a new era has come in railway management. I believe that railway officers generally accept in the utmost good faith this new state of affairs and earnestly desire to co-operate with the public and to give the public full information as to railway conditions. I have come in contact to an unusual extent with the presidents and general counsel of practically all of the important railways in the United States and have frankly exchanged views with them upon this subject, so that I think I am especially well qualified to assure you that railway officers do accept the new order of things in the proper spirit."

"But the change which has come about and has caused the public to take such active part in railway management calls for a change of attitude on the part of the public as well as on the part of the railways.

"The first point to which I wish to call your attention is that there is a mistaken notion in the present day that it is unlawful for railway companies to earn more than 6 per cent. upon their value. This idea is repeatedly asserted, but is absolutely wrong.

"It is generally claimed by those who assert this error that the supreme court of the United States has announced the principle that railways and other public service corporations ought not to be permitted to earn more than 6 per cent. upon their value and the supporters of this claim generally cite the supreme court's decision in the New York Gas case. Perhaps you will be surprised when I tell you that neither in this case nor in any other case has the supreme court ever decided any such thing. On the contrary, all that the court suggested in

that case was that the legislature constitutionally could not reduce the rates of the gas company so as to produce less earnings than 6 per cent. upon the company's property.

"The next point to which I wish to call your attention is that the public cannot afford to overlook the fact that a railway company must be continually enlarging and improving its property so as to meet the needs and requirements of the public and promote the public convenience and safety.

"It is the conclusion of the directors of the Santa Fe, to instance one road, that in order to spend the \$50,000,000 a year needed for the improvement and extension of the property so as to meet public requirements and promote public conveniences and safety, it will be necessary to have about \$10,000,000 of surplus earnings after paying a dividend of 6 per cent. on the common stock, and to invest this in the property, and that this will afford a basis for borrowing additional money at the rate of about \$20,000,000 a year to invest likewise in the property, thus affording the sum needed for the improvement of the property.

"To cut down earnings so as to allow only 6 per cent. on the present common stock and to leave no surplus to invest in the property and sustain the company's credit will put an end to the raising of the money needed for the proper development of the property."

#### University Extension for Engineers.

The United Steam Engineers of Detroit have concluded an arrangement with the University of Michigan, by which the university will co-operate with the engineers in giving instruction in Detroit regularly five days in a week—the university extension idea applied to the instruction of engineers. The plans are now being perfected. The "United Steam Engineers" includes two local societies of the International Union of stationary engineers, two of the National Association of stationary engineers, and one each of the Universal Council of Craftsmen and the marine engineers' association. These bodies are made up of men who run stationary engines, engines on boats, hoisting engines, etc., including, we believe, gas engines. The members of these associations recognize that their work is now of such an exacting nature and its complications are so constantly increasing, that the only way for engineers to keep up-to-date and for their helpers to prepare themselves properly for promotion, is to have improved means of availing themselves of all possible knowledge in their field. It is expected that Dean Cooley, of the engineering schools of the university, will appoint an instructor who will reside in Detroit. Probably this instructor will arrange to hold evening classes at such places, and with such frequency as may be necessary to supply the wants of all the associations interested. It is proposed to provide a three years' course of instruction. It is said that the organizations named have 1,400 members in Detroit.

#### Mr. Stilwell's Plans.

I am in favor of controlling railways by a fixed policy, making the requirements everywhere the same, and as simple as can be framed in order to execute the laws and guard public safety.

Why cannot specifications, as for building, be mutually agreed upon so that when capital makes up its mind to build a railway it may read the rules governing the investment and if it does not like them—may invest in some other enterprise, or go to Mexico or Argentina or Canada, where the building of railways is cordially invited and heartily encouraged?

If electric headlights are a requisite, insert it in the specifications; then you will not buy acetylene headlights on all your new engines one day and the next have to change them for electric lights. If you must run three passenger trains daily, even though there is not enough business for two, put it in the specifications! If you are not to be permitted to place advertising matter in the stations, put it in the specifications! If you must manicure the cattle's hoofs and braid pink ribbons in their tails, in transit, put it in the specifications! If a brakeman is needed at the front while trains are running through cities, put it in the specifications! Let's find or create a correct state standard and then adopt it for all roads throughout the Union.

There are hundreds of instances where the state requirements, as to conditions, are more unfair than the rates.

If the different states would agree to appointment of an arbi-

tration committee comprising 10 or 12 of the representative business minds of the United States; this committee to draft a simple railway law that would be uniform in its requirements, such board would understand how to cut out the driftwood of complications and simplify the law. Then let each state accept it for a 10 or 15-year period.

This plan would bring great prosperity; the following influx of foreign money would be as great as though a Klondike had been discovered in the heart of the United States.

Each road would then understand what it must do through its set specifications, and if it does not approve the restrictions would refrain from building.

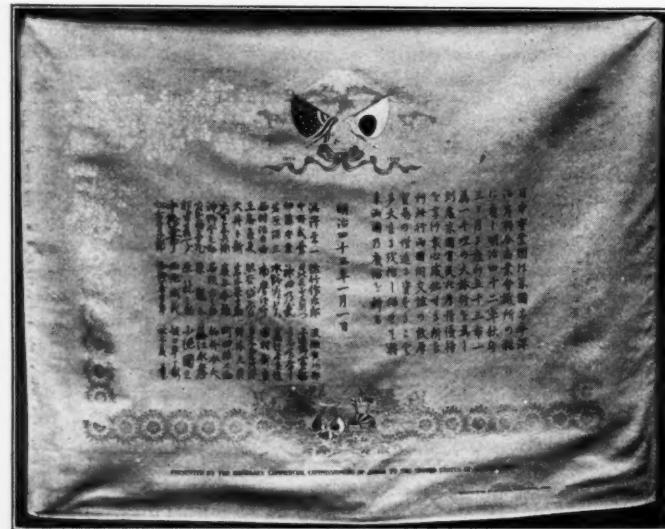
The greatest question before the American people is to simply solve the railway problem and to do it quickly—the quicker, the better.—*A. E. Stilwell, president of the Kansas City, Mexico & Orient, in The Bankers' Magazine.*

#### Mr. Kahn's Observations in the West.

In my tour of the West I was impressed by the stupendous business opportunity the section holds out, and by the very great amount of money that will be required to develop this section. The building of railways and of industrial works will call for vast sums, and it is the moderate investor who must supply this money. The rich have not money enough. Rich men are only the instruments through which large enterprises are carried out. The moderate investor will demand safety against attack. It is always the investor of moderate means who is injured by agitation and disturbance. Men of wealth can foresee disaster in time to escape. When trouble threatens, capital runs, and it can run faster than any sprinter. I believe agitation is on the decline, the crisis past. All that business asks is that it shall have stable conditions to work under; that those who shape public policy shall decide what they want to do. Business then will adjust itself to conditions.—*Otto H. Kahn, director of the Union Pacific.*

#### Japanese Commercial Commissioners Honor Howard Elliott.

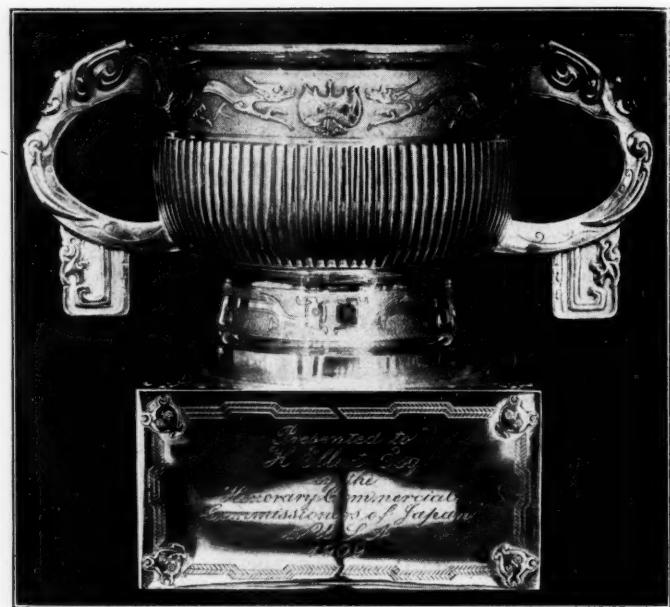
When the Honorary Commercial Commissioners of Japan were in the United States last year on their trip around the world, Howard Elliott, president of the Northern Pacific, did a great deal to make their visit to this country pleasant and profitable. He assisted the cities of Seattle, Spokane, Tacoma, Portland and San Francisco in perfecting the arrangements for the entertainment of the commissioners in these cities and se-



Resolution of the Japanese Commissioners.

cured many concessions for them from the different railway companies. In appreciation of Mr. Elliott's many services to them, the commission has just sent him a loving cup, of which a photographic reproduction is given herewith. It has also sent him a resolution on silk, a reproduction of which is also printed herewith. The translation of the resolution is as follows:

"The Honorary Commercial Commissioners of Japan, who, at the invitation of the Associated Chambers of Commerce of the Pacific Coast, made an extensive tour through the United States in the latter part of 1909, occupying three months and covering 11,000 miles and 53 cities, desire to place on record their most grateful recognition of the courtesy and hospitality uniformly extended to them both by the officials and people of



Cup Presented to Howard Elliott.

the United States. They believe that this visit has materially contributed to the consolidation of the bonds of amity and good understanding and the development of trade relations between the two nations, whose continued welfare and prosperity will always be the object of their sincere solicitude.

#### (Signed)

Shibusawa, Eiichi, Baron	Matsumura, Toshio
Nakano, Buei	Midzuno, Kokichi
Doi, Michio	Minami, Takajiro, Dr.
Fujie, Nagataka	Nakahashi, Tokugoro
Hara, Rinnosuke	Nezu, Kaichiro
Hara, Ryuta	Nishihiko, Nariyoshi
Hibiya, Heizaemon	Nishimura, Jihei
Horikoshi, Zenjuro	Oi, Bokushin
Ito, Morimatsu	Otani, Kahei
Ishibashi, Tamenosuke	Sakaguchi, Heibeii
Iwahara, Kenzo	Satake, Sakutaro
Iwamoto, Einosuke	Shiota, Akira
Iwaya, Sueo	Soda, Kinsaku
Kadono, Tominosuke	Takaishi, Shingoro
Kanda, Naibu, Baron	Takatsuji, Narazo
Kamino, Kinnosuke	Taki, Kumejiro
Koike, Kunizo	Tamura, Shinkichi
Kumagaya, Taizo, Dr.	Watase, Torajiro
Machida, Tokunosuke	Zumoto, Motosada
Matsukata, Kojiro	

#### What's In a Name?

Following the rejection of the application by the Cincinnati, Georgetown & Portsmouth Railroad Company for remission of taxes, it is probable that the company's charter, which is for a steam road, may be changed. The company has converted its road into an electric interurban railway, but still uses a steam locomotive on some heavy grades in hauling freight. Electric roads in Ohio pay a tax of but one and two-tenths per cent. on their gross receipts while steam roads pay 4 per cent.

#### Railway Apprenticeships Desired for Chinese Students.

Consul-General S. S. Knabenshue, of Tientsin, China, under date of Sept. 5, 1910, states that the president of the Tongshan Engineering and Mining College is desirous of obtaining apprenticeships with American railway companies or railway-supply companies for graduates in the course of railway engineering offered by that college. This would enable the Chinese apprentices to become familiar with American railway materials, and would undoubtedly exert some influence in securing future Chinese orders for these materials.

## New Railway to Siberia.

Archangel, the chief port of export for Western Siberia over the Perm-Kotlass Railway and by river to Archangel, is likely in the near future to occupy a still more prominent position, money having been voted for the survey of the new direct route to Siberia via Ust-Ukta, Boroslavsky and Perm. The traffic on the Perm-Kotlass Railway in 1909 amounted to 306,500 tons, being nearly twice as much as in preceding years and the line earning a dividend for the first time.

## Railway Business Association.

The Railway Business Association announces as the speakers for its annual dinner at the Waldorf-Astoria in New York City on the evening of November 22, 1910, the Hon. Martin A. Knapp, chairman of the Interstate Commerce Commission; Daniel Willard, president of the Baltimore & Ohio, and also president of the American Railway Association; John Clafin, president of the H. B. Clafin Company, and George A. Post, president of the Railway Business Association, who will preside.

In announcing the dinner, the association says: "That differences as to railway problems may be adjusted, good feeling with regard to them prevail, and wise solutions insure permanent national prosperity, it is desirable that all concerned should study sympathetically one another's point of view. The Railway Business Association was formed in 1908 by the manufacturers of railway materials and equipment, contractors in railway construction and dealers in railway supplies, to promote such conciliation. The association now in 1910, as in 1909, has arranged for that purpose a dinner. Here the governmental regulator, the shipper, the railway manager, the financier and the manufacturer of railway goods, may get acquainted and talk it over. Each speaker is expected to indicate what concessions can be made by any party in interest, his own included, as a contribution to a better understanding. It is hoped that the utterances upon this occasion will have a substantial and beneficent influence in establishing confidence in the minds of the general public at home and abroad that the American railway policy is to be conservative and constructive."

## Traffic Club of St. Louis.

The next meeting of the Traffic Club of St. Louis will be held at the Jefferson hotel, St. Louis, Mo., on November 16, when the annual election of officers will be held. The nominating committee has submitted one ticket and the "insurgents" have prepared another list of names for officers for the ensuing year. Both tickets are headed by C. R. Gray, senior vice-president of the St. Louis & San Francisco, for president, and both also include George J. Tansey, president of the St. Louis Transfer Company, for first vice-president, and George W. Simmons, vice-president of the Simmons Hardware Company, for second vice-president.

## Central Railway Club.

At the regular meeting held in Buffalo, N. Y., Friday, November 11, Dexter C. Buell, chief of the bureau of education of the Union Pacific, presented a paper on "The Educational Bureau of the Union Pacific Railroad."

## Canadian Society of Civil Engineers.

At a meeting of the mechanical section held in Montreal, Que., November 10, J. A. Shaw presented a paper on "Power Plant Practice."

## Railway Surgeons.

At a meeting of the New York & New England Association of Railway Surgeons in New York on November 3, Dr. F. A. Goodwin, of Binghamton, N. Y., was elected president.

## MEETINGS AND CONVENTIONS.

*The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.*

AIR BRAKE ASSOCIATION.—F. M. Nellis, 58 State St., Boston, Mass.  
AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Scranton, Pa.; next meeting June 22, 1911; Niagara Falls, N. Y.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—C. M. Burt, Boston, Mass.; next meeting, St. Paul, Minn.  
AMERICAN ASS'N OF LOCAL FREIGHT AGENTS' ASS'N.—G. W. Dennison, Penn. Co., Toledo, Ohio.  
AMERICAN ASS'N OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew Bldg., Cincinnati, Ohio.  
AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 24 Park Place, New York.  
AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago; Sept. 17-19, 1911; St. Louis, Mo.  
AMERICAN RAILWAY ENGINEERING AND MAINT. OF WAY ASS'N.—E. H. Fritch, Monachock Bldg., Chicago; March 21-23, 1911; Chicago.  
AMERICAN RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; May 6, 1911; Detroit, Mich.  
AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony Bldg., Chicago.  
AM. RAILWAY TOOL FOREMEN'S ASS'N.—O. T. Harroun, Bloomington, Ill.  
AMERICAN ROADBUILDERS' ASSOCIATION.—Dec. 6-9; Indianapolis, Ind.  
AM. SOC. FOR TESTING MATERIALS.—Prof. E. Marburg, Univ. of Penn., Phila.  
AM. SOC. OF CIVIL ENGS.—C. W. Hunt, 220 W. 57th St., N. Y.; 1st and 3d Wed., except July and August; annual, Jan. 18-19; New York.  
AM. SOCIETY OF ENGINEERING CONTRACTORS.—D. J. Haner, 18 Park Row, New York.  
AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 29th St., New York; annual, Dec. 6-9; New York.  
AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.  
ASSOCIATION OF AM. RY. ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; April 26, 1911; New Orleans, La.  
ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; May, 1911; Montreal, Can.  
ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—G. B. Colegrove, I. C. R.R., Chicago.  
ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; June 19, 1911; Boston.  
ASS'N OF TRANS. AND CAR ACC. OFFICERS.—G. P. Conard, 24 Park Place, N. Y.; Dec. 13-14, Chicago; June 20-21, 1911, Cape May City, N. J.  
CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tues. in month, except June, July and Aug.; Montreal.  
CANADIAN SOCIETY OF CIVIL ENGS.—Clement H. McLeod, 418 Dorchester St., Montreal, Que.; Thursdays; Montreal; annual, last week January.  
CAR FOREMAN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month; Chicago.  
CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Friday in January, March, May, Sept. and Nov.; Buffalo.  
CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—D. F. Jurgensen, 116 Winter St., St. Paul; 2d Monday, except June, July and Aug.; St. Paul.  
ENGINEERS' SOCIETY OF PENN.—E. R. Dasher, Box 704, Harrisburg, Pa.  
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 808 Fulton Bldg., Pittsburgh; 1st and 3d Tues.; annual, Jan. 17, 1911; Pittsburgh.  
FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Rich., Fred. & Pot. R.R., Richmond, Va.; 20th annual, June 21, 1911; St. Paul, Minn.  
GENERAL SUPERINTENDENTS' ASS'N OF CHICAGO.—H. D. Judson, 209 Adams St., Chicago; Wednesday preceding 3d Thurs.; Chicago.  
INDIANAPOLIS RY. AND MECH'L CLUB.—B. S. Downey, C., H. & D., Indianapolis, Ind.  
INTERNATIONAL MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York; next convention, Omaha, Neb.  
INTERN'L RY. FUEL ASS'N.—D. B. Sebastian, La Salle St. Station, Chicago; May 15-18; Chattanooga, Tenn.  
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.  
INT. RY. MASTER BLACKSMITHS' ASS'N.—A. L. Woodworth, Lima, Ohio.  
INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.  
IOWA RAILWAY CLUB.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August; Des Moines.  
MASTER CAR BUILDERS' ASS'N.—J. W. Taylor, Old Colony Bldg., Chicago.  
MASTER CAR AND LOCO. PAINTERS' ASS'N OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass.  
NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept.; Boston.  
NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August; New York.  
NORTH-WEST RAILWAY CLUB.—T. W. Flanagan, Soo Line, Minn.; 1st Tues. after 2d Mon., except June, July, August; St. Paul and Minn.  
NORTHERN RAILWAY CLUB.—C. L. Kennedy, C., M. & St. P.; 4th Saturday; Duluth.  
OMAHA RAILWAY CLUB.—A. H. Christiansen, Barker Blk.; Second Wed.  
RAILWAY CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City; 3d Friday in month; Kansas City.  
RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, Pittsburgh, Pa.; 4th Friday in month, except June, July and August; Pittsburgh.  
RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, 12 North Linden St., Bethlehem, Pa.  
RAILWAY S'KEEPERS' ASS'N.—J. P. Murphy, Box C, Collinwood, O.; annual, May, 1911.  
RICHMOND RAILROAD CLUB.—F. O. Robinson; 2d Monday; Richmond, Va.  
ROADMASTERS' AND MAINTENANCE OF WAY ASS'N.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.; Oct., 1911; St. Louis.  
ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug.; St. Louis.  
SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.  
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. R. Ry., Montgomery, Ala.  
SOUTHERN & SOUTHWESTERN R.R. CLUB.—A. J. Merrill, Prudential Bldg., Atlanta; 3d Thurs.; Jan., Mar., July, Sept. and Nov.; Atlanta.  
TOLEDO TRANSPORTATION CLUB.—L. G. Macomber, Woolson Spice Co., Toledo; 1st Sat.; annual, May 6, 1911; Toledo.  
TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; 1st Sat. after 1st Wed.; annual, Dec. 13; Buffalo.  
TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August; New York.  
TRAFFIC CLUB OF PITTSBURGH.—T. J. Walters, Oliver Building, Pittsburgh; meetings monthly; Pittsburgh.  
TRAIN DESPATCHERS' ASS'N OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 20, 1911; Baltimore.  
TRAVELING ENG'RS' ASS'N.—W. O. Thompson, N. Y. C. & H. R. E. Buffalo.  
WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg; 2d Monday, except June, July and August; Winnipeg.  
WOOD PRESERVERS' ASS'N.—F. J. Angier, First National Bank Bldg., Chicago; annual, Jan. 17-19; Chicago.

## Traffic News.

The Pennsylvania Railroad has announced increases in season ticket fares throughout its New Jersey division.

The committee of the New York Chamber of Commerce, which has had under consideration the subject of uniform bills of lading, expects to take the subject up again at the next session of Congress.

A traffic arrangement has been made by the Western Pacific and the Santa Fe under which the Western Pacific will be able to ticket passengers to points in California reached by the Santa Fe or the Pacific Coast Steamship Company, and these lines in return will be able to ticket passengers eastward to points on the Western Pacific. Under this arrangement the Western Pacific will sell to Los Angeles over the Santa Fe.

The Southern Railway has established a Cotton Culture Department, with headquarters at Chattanooga, and proposes to show the farmers in its territory how to guard against or vanquish the cotton boll weevil. The department is in charge of T. O. Plunkett, and it is proposed to engage practical farmers, who have had experience in dealing with the boll weevil, to devote their entire time to visiting the farmers and telling them how the cotton growers in Texas have succeeded in securing large yields of cotton in spite of the pest.

The western railways have announced their intention of seeking to restore their rates between the Mississippi and the Missouri rivers and between Chicago and Denver to the basis on which they were before the courts suspended the order of the Interstate Commerce Commission in the Missouri river and Denver cases requiring them to be reduced. The commission's order was for two years, and it expired by limitation on November 10. It is anticipated that the commission will suspend the advance and that the case will have to be tried all over again.

Representatives of the railways and the commercial organizations at Chicago have agreed, after prolonged negotiations, on an arrangement of switching rates under which the railways entering that city will absorb practically all switching charges on long distance shipments. Rates which had been in effect for years were abrogated about three years ago, making a heavy advance. The shippers then appealed to the Illinois Railway Commission, which fixed new switching tariffs. The railways appealed to the courts alleging that the commission's rates were confiscatory. The rates now agreed upon are higher than those fixed by the commission but satisfactory to shippers because of the method of readjustment. On the new basis the railways will absorb switching charges in such a way that the same rates will be made to all points within the Chicago district. The line bringing freight in or taking it out of this territory absorbs such connecting line switching charges as may be necessary to make delivery to or receive from industries, warehouses or elevators when the freight charges are \$15 a car or more. When such charges are less than \$15 the rate will include such portion of the switching charges as will leave the carrier the same net revenue as would accrue after absorption of the switching charges in a fifteen dollar charge. The rate for connecting line switching, except on grain, coal or coke, is to be not greater than 1 per cent. per 100 lbs., with a minimum of 60,000 lbs. per car. For switching rates within the city there will be the same carload minimum and the maximum rate will be 1½ cents per 100 lbs.

### Freight Car Balance and Performance.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 84, covering car balance and performance for July, 1910, says:

"There was a falling off in traffic during July, and an increase in the number of idle cars, a natural consequence of which was a return of cars to their home lines. This movement resulted in an increase of the home percentage from 62 per cent. to 64 per cent. and a decrease in the loaded mileage to 65.5 per cent. as compared with 68.4 per cent., the June average.

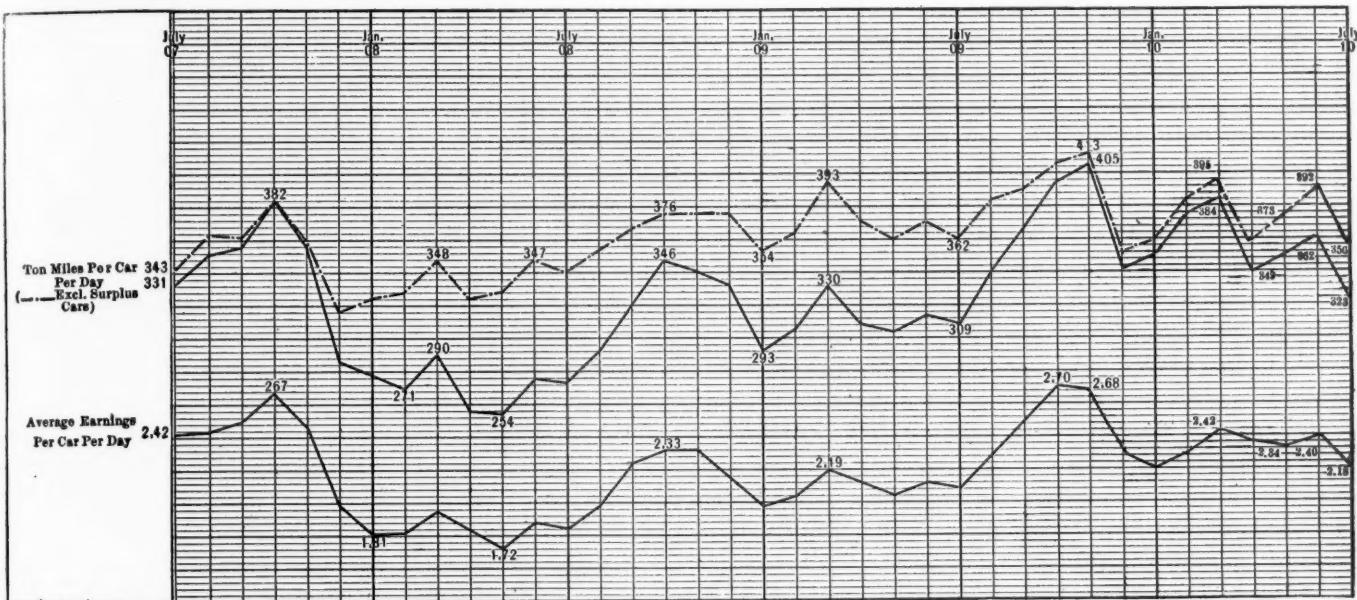
"The car movement slowed up perceptibly, the miles per car per day averaging 22.8, as against 24.5 during the previous

CAR BALANCE AND PERFORMANCE IN JULY, 1910.											
	N. Y., N. J., Del., Md., Eastern Pa.	Ohio, Ind., Mich., Western Pa.	Va., W. Va., No. and So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Wis., Minn.	Mont., Neb., Colo., Okla., Dakotas., Mo., Ark.	Kan., La., Tex.,	Ore., Idaho, Nev., Cal., Ariz.	Canadian Lines.	Grand Total.	
Revenue freight cars owned	694,526	222,021	174,229	168,403	385,800	17,571	135,226	27,555	133,704	2,139,554	
Average number of system cars on line	42,158	142,800	100,571	98,630	288,556	6,275	87,323	18,449	66,800	1,366,567	
Railway-owned cars: Average foreign on line	36,285	242,567	58,317	51,977	42,499	110,501	12,233	46,676	57,116	733,270	
Total cars on line	78,443	683,102	23,117	141,119	390,057	18,588	134,199	35,016	128,716	101,982	
Excess	.....	.....	.....	.....	.....	13,257	957	.....	7,461	2,098,777	
Per cent. of cars on line to total owned:										.....	
Home	54	63	64	58	59	75	36	67	50	64	
Foreign	46	35	40	30	25	28	69	34	43	34	
All railways	100	98	104	88	84	103	105	99	100	98	
Private cars on line	3,163	37,022	10,138	4,050	5,904	16,438	1,846	8,474	9,510	101,922	
Total, all cars on line	81,606	720,124	241,255	156,598	147,023	415,490	20,374	142,673	37,426	104,504	
Per cent. of cars in shop	5.04	6.96	8.57	7.06	8.65	7.15	5.61	9.75	6.33	2,200,299	
No. of freight engines owned	1,153	10,254	3,889	2,983	2,511	6,128	468	2,609	751	6,977	
Average cars on line per freight engine owned	71	70	84	52	59	68	44	55	50	34,502	
Total freight-car mileage	39,354,042	490,187,991	161,436,937	119,394,173	112,993,337	286,805,514	28,995,559	90,315,674	28,099,665	114,527,928	
Average miles per car per day	15.6	22.0	21.5	24.6	24.8	22.3	46.6	21.5	24.2	22.3	
Per cent. loaded mileage	73.3	56.7	66.3	65.4	70.2	69.8	72.3	69.8	66.7	74.4	
Ton-miles of freight, including Company freight	411,517,571	7,382,987,210	2,234,737,019	1,795,871,118	1,515,627,109	2,144,280,412	409,850,807	1,241,226,492	322,230,509	1,643,917,126	961,749,427
Average ton-miles, including Company freight:										20,064,037,800	
Per car-mile	10.5	15.1	14.9	15.0	13.5	12.7	14.7	13.7	11.5	14.2	
Per loaded car-mile	14.3	26.5	22.5	23.0	18.0	18.3	20.3	19.9	17.2	13.3	
Per car per day	163	331	320	370	335	283	713	295	405	21.9	
Gross freight earnings	\$5,049,689	\$44,318,330	\$13,151,782	\$10,306,267	\$9,908,516	\$27,854,964	\$3,329,943	\$9,954,279	\$2,756,748	323	
Average daily earnings: Per car owned	\$2.08	\$2.06	\$1.91	\$1.91	\$1.90	\$2.33	\$6.11	\$2.37	\$14,761,843	\$147,915,783	
Per railroad-owned car on line	2.08	2.09	1.84	2.18	2.26	2.25	5.80	2.39	\$3.56	\$2.24	
All cars on line	2.00	1.99	1.76	2.12	2.17	2.16	5.97	2.41	3.57	2.18	

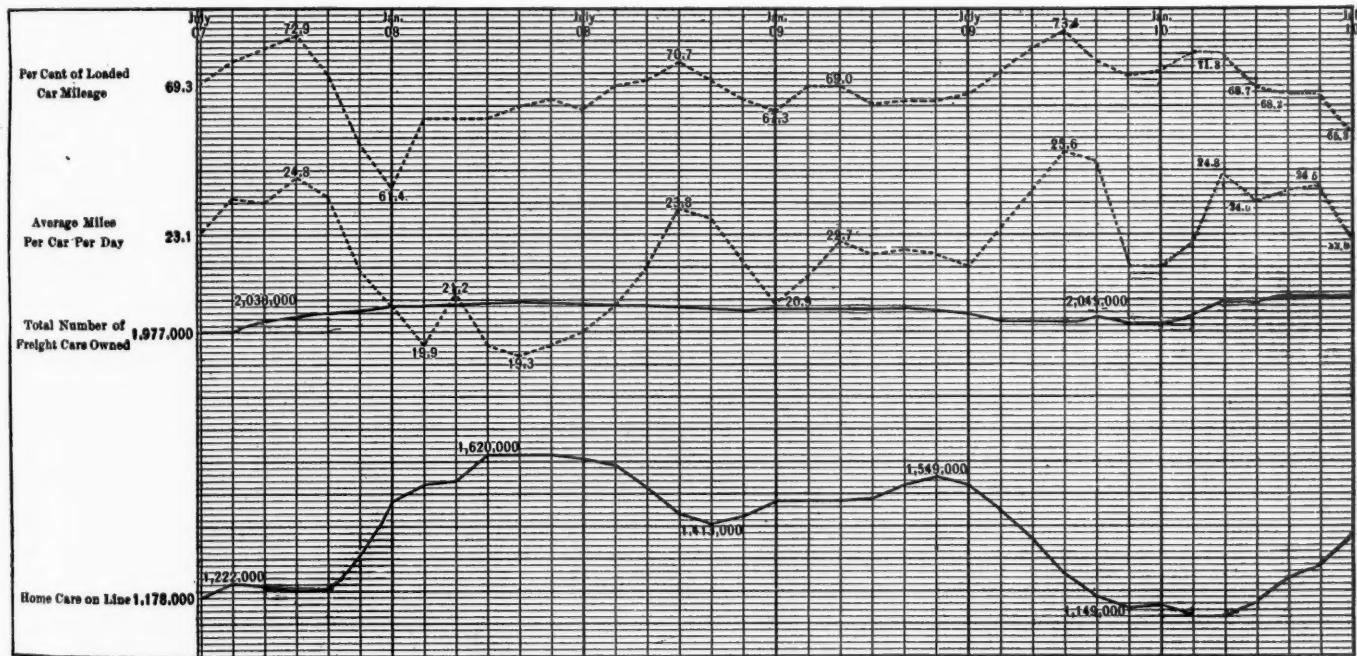
month. The shop cars increased slightly, averaging 6.99 per cent. of the total equipment in service.

"The loading per car shows an improvement, averaging 21.9 tons, an increase of .2 tons over June. The combined performance, however, as represented by the ton miles per car per day, shows a falling off to 323 and the earnings per car to \$2.18, both averages being the lowest since July, 1909."

possible that if this change is made the continuation of the line to Quito may be abandoned. There have been also proposals made and a law has been passed by Congress for building a railway from Ecuador to a bathing place on the Pacific coast. Playas or Salinas was originally proposed and the former place was selected. The railway from Machala to the cocoa districts is still being worked, but has not progressed at all. The Guaya-



Car Earnings and Loading.



Car Performance.

The accompanying table shows car balance and performance in July and the charts show earning and performance in 1907, 1908, 1909 and 1910.

#### Bahia Railway Development.

The work on the Bahia Railway has been pushed forward by the French company, and a government commissioner has been sent down to receive the first 9½ miles of the line with the object, it is presumed, of issuing the bonds in payment therefore. It has been reported that several projects are in contemplation for the change of the course of this railway, the principal one being to extend it through some of the cocoa districts round Guayaquil and to bring a branch of it to a terminus in Ecuador. The final decision, however, is not yet known. It is

Guayaquil and Quito Railway has taken over the administration and operation of the railway with the ultimate intention of extending it to Cuenca and Loji, and locomotives of the Guayaquil & Quito Railway Company have been sent down for the service of the line, which has already been taken possession of by that company.

#### Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 81-A, giving a summary of car shortages and surpluses by groups from June 23, 1909, to Oct. 26, 1910, says:

"There is a decrease in the surplus of 4,604 cars, bringing the

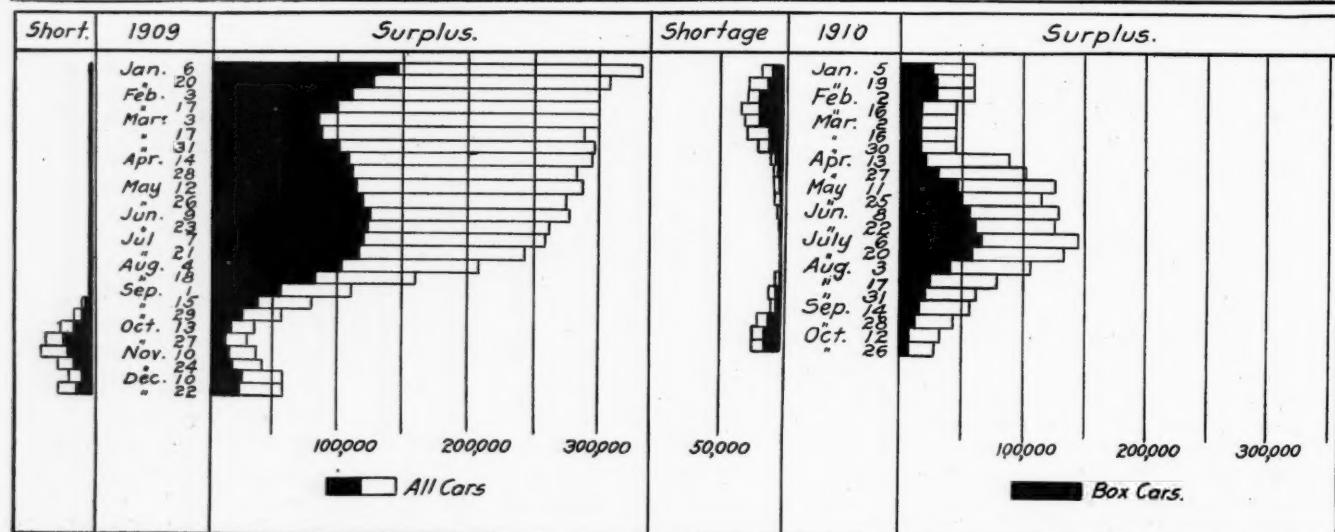
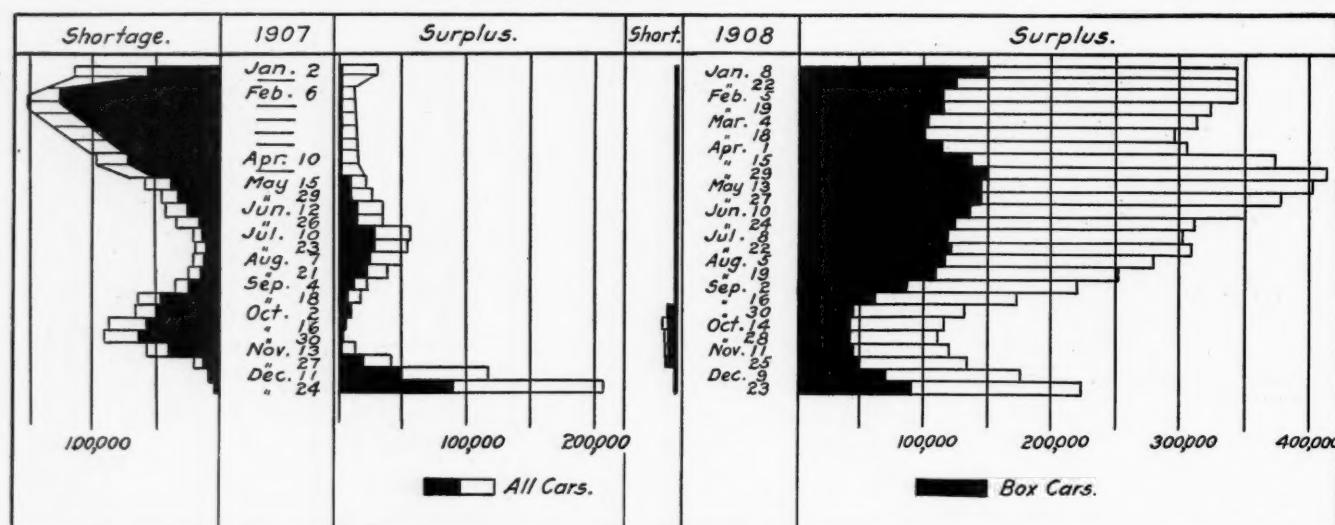
total down to 29,131, which is 1,765 cars less than last year. The shortages total 21,896, an increase of 1,377 over last report. For the corresponding period in 1909, the shortage was 36,636. The maximum shortage in 1909 was 39,909, the figure reported for November 10.

"The reduction in surplus is principally in miscellaneous cars, which show a decrease of 3,688, made up chiefly of coke cars in group 2 (eastern), with smaller decreases in refrigerator cars in the central states and stock cars in the South and Southwest. The largest item of increases in the shortage is in flat cars on roads in group 5 (southern).

The accompanying table shows surplus and shortages by groups for the last period covered in the report, and the charts show total surpluses and shortages in 1907, 1908, 1909 and 1910:

Date.	No. of roads.	Surpluses				Shortages					
		Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group 1.—October 26, 1910.....	8	263	132	220	187	802	245	154	151	14	564
" 2.— " 26, 1910.....	23	888	85	1,329	4,221	6,523	488	10	643	83	1,224
" 3.— " 26, 1910.....	24	1,487	271	385	1,580	3,723	1,444	25	795	131	2,895
" 4.— " 26, 1910.....	10	130	62	374	261	827	859	378	1,759	77	3,073
" 5.— " 26, 1910.....	17	0	0	61	305	366	2,752	644	1,209	46	4,651
" 6.— " 26, 1910.....	22	4,577	753	1,413	2,251	8,994	353	52	287	430	1,122
" 7.— " 26, 1910.....	3	46	16	0	18	80	191	0	165	107	463
" 8.— " 26, 1910.....	12	42	73	377	1,022	1,514	1,616	69	134	108	1,927
" 9.— " 26, 1910.....	11	439	138	261	450	1,288	925	51	147	100	1,228
" 10.— " 26, 1910.....	18	334	378	1,348	2,495	4,550	2,018	187	35	503	2,743
" 11.— " 26, 1910.....	4	51	116	15	282	464	2,007	26	0	478	2,511
Total .....	152	8,257	2,024	5,778	13,072	29,131	12,898	1,596	5,325	2,077	21,896

\*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland, and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia, and Florida lines; Group 6—Iowa, Illinois, Wisconsin, Minnesota and the Dakotas lines; Group 7—Montana, Wyoming and Nebraska lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Oregon, Idaho, California and Arizona lines; Group 11—Canadian lines.



Freight Car Surpluses and Shortages in 1907, 1908, 1909, 1910.

#### INTERSTATE COMMERCE COMMISSION.

An order of the Interstate Commerce Commission requiring a large volume of statistics in detail, both in regard to operation and capitalization, has been issued and is commented on elsewhere in this issue.

#### Hearing of the Des Moines Cases Refused.

*Commercial Club, of Omaha, v. Anderson & Sallie River Railway et al. Opinion of Commissioner Clark.*

The complaint was based on the increases in rates to Omaha, following the Des Moines case and the Lincoln Commercial Club case, and many railroads were made defendants that were

not defendants in either the Lincoln or the Des Moines cases. No new facts are presented, and no point is raised that was not previously considered. (19 I. C. C., 419.)

#### Rates on Damaged Shipments.

*In re Reduced Rates on Returned Shipments. Opinion by Commissioner Lane.*

On complaints in regard to proposed withdrawal by carriers of their special reduced rates on returned shipments, investigation was held by the commission, but after due consideration the former conclusion of the commission announced in section B, paragraph 67, of Tariff Circular 17-A, is adhered to, which disapproved of the returned-shipment rates in general, but justified reduced rates for the return of freight which has been refused by the consignee at destination.

The principle underlying the ordinary transit privilege cannot be relied on in support of the returned-shipment rule. Transit arrangements, in their common form, are susceptible of defense only upon the theory that the inbound and outbound movements are in facts parts of a single continuous transaction; but there is no real connection between an outbound shipment to-day and a "returned shipment" one year hence.

The commission does not feel justified in modifying the terms of its ruling to the effect that shipments refused at destination may be returned at reduced rates within 10 days. The 10-day limit does not seem to be inadequate.

It is axiomatic that rates depend largely upon value, and the commission thinks that no objection could be raised against the establishment of special ratings for the movement of defective or damaged goods; but if this course is adopted the "returned" element should be altogether disregarded, the rating to be predicated entirely upon the low value of the freight. (19 I. C. C., 409.)

#### Relation of Car Load and L. C. L. Rates.

*Commercial Club, of Omaha, v. Baltimore & Ohio et al. Opinion by Commissioner Lane.*

The petition attacks car load rates on butter, eggs and poultry from Omaha to points in the Central Freight Association and Atlantic Seaboard territories. The complaint does not undertake to establish the unreasonableness of any specific rate, but rests its case primarily on the ground that the expenses to which railways are subjected in transporting L. C. L. business is greatly in excess of the cost of carrying car load business. Accordingly, if the existing rates yield a sufficient return for the movement of L. C. L. freight, lower rates than those now in existence should be made effective on car load traffic. The admitted difference in the cost of service is entirely consistent with the conclusion that the existing rates are liberal, as far as L. C. L. freight is concerned, and no more than a reasonable charge on carload traffic. Any quantity rate (L. C. L. rate) rests on sound public policy. It enables the small shipper to compete on equal terms with his powerful competitor, thereby counteracting in a measure the prevalent tendency toward a monopoly. The second ground for attacking the carload rate is that it is made up of a combination of locals and is unreasonable for that reason. It is self-evident that the movement of through traffic is less expensive than the movement of local business. In no case, however, has this been the sole ground for reducing a rate, and we have expressly recognized the possibility that the factors comprising through rate may be so low in themselves as to yield a reasonable through charge. (19 I. C. C., 397.)

#### Rate Advances Made in 1908 Sanctioned.

*A. P. Morgan Grain Co. et al. v. Atlantic Coast Line et al. Railroad Commission of Alabama v. Louisville & Nashville et al. Railroad Commission of Georgia v. Atlantic Coast Line et al. Opinion by Commissioner Cockrell.*

The three cases are based on a complaint against advances, effective August 1, 1908, made in rates on classes B, C, D and F fresh meats, grain, hay, grain products and packing house products from Ohio and Mississippi river crossings to certain destinations in Southeastern Freight Association and Southeastern Mississippi Valley Association territory. The rates from Louisville, Ky., to Atlanta, Ga., and from Louisville to Birmingham, Ala., are typical of the rates that all other rates attacked are related to or based on. Effective September 1, 1891, the rates from Louisville to Atlanta were reduced from what had been for three years theretofore (practically from the real basis established in 1884) one cent on class B, three cents on class C, three cents on class D and six cents on class F. These rates have never been exceeded since that date, with the exception that the rate on class B, owing to the advances of August 1, 1908, is now 36 cents, an advance of one cent. To offset this, however, the rate on flour in sacks, any quantity, formerly in class C, even under the advance, is four cents less than on September 1, 1891. On February 1, 1905, rates were reduced to Atlanta but not to Birmingham; and the commission finds that these rates to Atlanta were reduced under compulsion of threatened retaliation by the Georgia Railroad Commission and Georgia shippers who actually put into effect intrastate rates almost exactly one-half the rates theretofore in effect, and concerning which previous rates the Georgia commission had congratulated itself by comparison with other southern states only two months before. Moreover, the railway companies were told that their franchises, rights of way, etc., for an Atlanta terminal would be held up if they did not make a readjustment in favor of Atlanta as compared with Birmingham; and when they made this readjustment by reduction of rates to Atlanta, the necessary permission for carrying on the terminal work was granted. The rate advances of 1908 preserve the same relation between Atlanta rates and the Birmingham rates as existed before, so that before 1905, while the Atlanta rates as advanced are no higher than they were, the rates to Birmingham are actually higher than they were in 1905. The commission, however, finds that the present advances measured by the actual movement of articles in classes B, C, D and F through Ohio and Mississippi river crossings during the calendar year 1907 would only amount to \$589,359 for the five states of Alabama, Florida, Georgia and the Carolinas. The complainants also urge the commission to consider that if these advances are allowed, they will be used as an entering wedge for other advances. The commission is not unmindful of the situation thus placed before it. This report, however, is confined to the specific matters now in issue and is not to be construed as extending beyond them, or as indicating in any degree approval of further advances in rates. The condition of most of the railways in this section of the country is not yet up to the highest standard, and in order that facilities may be improved and extended to the ultimate lasting advantage of the people of the South, it is necessary that the railways be permitted to charge rates that are fully compensatory for the services they perform, so long as such rates have not been shown to be unjust. The commission is unable to hold that an advance is unreasonable, because some part of the benefit therefrom will accrue to a carrier that "during the period of the last 10 years has regularly paid interest on its total bonded debt," and in addition thereto has recently paid dividends on its stock. The complaints are dismissed.

*Commissioner Lane dissents.*

*Commissioner Clements dissenting:*

In dissenting from the opinion of the majority, a position always to be deplored, it would be perhaps enough to say that it is impossible for me to find justification for the threatened burden on the transportation of this great section of the country, either in the needs of the carriers, the history of rates, or the action of the public to pay 12 cents per capita more for the staples affected. The rates in this case cannot be tested by the rule quoted in the majority opinion from *Smyth v. Ames*, because these rates affected only a part of the carriers in this business. Rates long maintained do not assume the character of a vested right, but a business long conducted under a system of rates voluntarily established does fasten to such rates a presumption of fairness which renders necessary a more convincing proof of unreasonableness where all classes and states are involved than does a single rate, and these proofs, in my opinion, are wanting in this case. With the same solicitude for the development and prosperity of the South, as manifested in the majority opinion, and admitting that these advances will offer no lasting check, it should be borne in mind that the carriers of the Southeast have no such development and prosperity as they have enjoyed under the very rates which in this proceeding the complainants seek to have restored.

## REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF SEPTEMBER, 1910.

Operating expenses—

Name of road.	Mileage operated;	Operating revenues		Maintenance of way and structures.		Trans- portation		General.	Total.	Operating revenues (or loss). net.	Outside operations, net.	Operating income comp. with last year.	
		of period.	Freight.	Passenger.	inc.	Traffic.	inc.						
Atchison, Topeka & Santa Fe.	7,547*	\$1,897,551	\$7,488,380	\$1,074,879	\$1,058,764	\$157,911	\$2,081,447	\$145,744	\$4,518,745	\$2,696,635	\$258,399	\$183,959	
Atlantic Coast Line	4,518	1,537,017	562,233	2,246,774	318,854	523,000	421,196	757,155	68,169	1,545,073	95,500	666,201	
Boston & Maine	2,243	2,205,863	1,679,172	4,176,981	698,342	52,057	1,895,531	98,881	3,268,416	908,565	10,640	43,773	
Central R.R. Co. of New Jersey	6,678	1,482,875	9,401,859	2,411,111	981,416	305,535	35,658	566,502	287,781	1,927,693	85,934	270,565	
Chicago, Burlington & Quincy	7,693†	4,508,918	1,943,859	1,222,743	698,113	96,508	2,586,442	183,595	814,166	212,782	2,000	3,784	
Chicago, Milwaukee & Peoria	9,037*	5,411,734	8,395,265	2,317,638	1,232,158	1,173,000	156,471	2,486,449	183,595	2,743,053	210,454	121,655	
Chicago, Milwaukee & Puget Sound	7,103†	1,018,900	110,168	62,943	1,162,900	106,116	30,153	420,362	10,002	629,579	2,911,131	79,455	
Chicago, Milwaukee & St. Paul	7,511	4,479,465	5,150,061	6,504,203	974,855	122,204	2,477,219	75,653	4,425,936	2,078,246	6,345	51,713	
Chicago, Rock Island & Pacific	7,396	3,668,552	989,515	1,930,071	1,679,172	158,035	2,036,748	160,494	4,168,126	1,761,945	3,973	274,552	
Chicago, St. Paul, Minneapolis & Omaha	1,739	1,032,927	4,499,160	1,621,007	1,96,829	173,065	25,625	537,973	26,021	2,558,813	669,194	151,109	
Cleveland, Cincinnati, Chicago & St. L.	1,982	1,731,858	815,832	2,792,529	386,125	448,117	83,700	1,057,024	54,168	2,059,134	733,195	210,472	
Delaware & Hudson Co.	819	1,352,149	1,762,208	186,928	1,762,208	186,928	247,562	497,913	40,680	1,081,058	62,150	4,431	
Delaware, Lackawanna & Western	930	2,133,765	728,431	3,046,594	503,335	420,614	57,453	853,522	51,995	1,886,919	1,629,755	19,070	
Denver & Rio Grande	2,553	5,270	583,116	2,365,805	635,034	363,515	358,650	731,854	45,234	2,477,219	75,653	14,747	
Erie	1,518	3,199,439	870,666	1,505,295	735,793	99,405	104,067	1,559,415	93,297	3,255,638	1,761,945	1,041	
Great Northern	7,274*	4,469,930	1,350,878	6,294,922	866,937	104,067	1,559,415	372,752	301,921	1,761,945	7,716	238,866	
Lake Shore & Michigan Southern	1,752	2,244	2,312,747	1,072,455	1,751,895	147,377	621,301	87,905	1,057,024	54,168	2,059,134	733,195	
Louisville & Nashville	2,417,381	1,019,365	4,487,125	753,205	1,762,208	107,477	100,477	931,602	69,802	1,081,058	62,150	4,431	
Michigan Central	1,954	3,290,004	1,059,956	4,610,170	788,254	92,632	1,408,474	90,394	1,172,680	1,629,755	26,045	138,650	
Missouri, Kansas & Texas	1,959	3,199,439	870,666	1,505,295	735,793	99,405	104,067	1,559,415	93,297	3,255,638	1,761,945	1,041	
Missouri, Kansas & Texas Ry. Co.	7,274*	4,469,930	1,350,878	6,294,922	866,937	104,067	1,559,415	372,752	301,921	1,761,945	7,716	238,866	
New York Central & Hudson River	1,662	2,910,040	1,109,365	4,487,125	753,205	1,762,208	107,477	100,477	931,602	69,802	1,081,058	62,150	4,431
New York, New Haven & Hartford	2,041	2,627,040	1,222,671	1,072,455	1,751,895	147,377	621,301	87,905	1,057,024	54,168	2,059,134	733,195	
Northfolk & Western	1,951	2,683,179	4,417,381	1,019,365	4,610,170	788,254	92,632	1,408,474	90,394	1,172,680	1,629,755	26,045	
Northern Pacific	5,914	4,421,422	1,869,099	6,167,992	861,563	671,936	86,838	1,013,700	90,151	1,928,630	1,202,034	215	
Pennsylvania R.R. Co.	1,952	3,199,439	870,666	1,505,295	735,793	99,405	104,067	1,559,415	93,297	3,255,638	1,761,945	1,041	
Pennsylvania Company	3,970	9,987,259	1,982,742	411,210	1,486,761	200,692	260,374	39,144	496,874	47,389	1,761,945	7,716	238,866
Pere Marquette	2,328	915,163	5,017,913	303,035	1,080,289	191,853	41,270	200,761	31,110	702,184	378,105	88,800	
Philadelphia, Baltimore & Washington	2,328	915,163	5,017,913	303,035	1,080,289	191,853	41,270	200,761	31,110	702,184	378,105	88,800	
Pittsburgh, Cincinnati, Chicago & St. L.	7,177	849,319	674,999	1,670,840	265,217	267,341	23,829,273	9,657	649,303	1,252,834	418,006	277,447	
Southern Ry.	7,053	3,169,342	1,482,564	5,029,012	632,030	823,935	128,821	84,806	1,240,176	65,938	1,250,047	1,096,107	
Texas & Pacific	3,812	935,096	3,352,518	1,380,560	191,208	250,980	500,939	88,567	1,192,904	1,230,146	1,668,866	3,696	
Union Pacific	3,812	592,530	1,056,967	5,030,850	500,939	500,938	1,752,683	510,655	1,192,904	1,230,146	1,668,866	3,696	
Vandalia	827	646,726	1,240,707	973,067	174,055	28,202	360,066	19,852	1,175,417	112,198	2,441,577	3,777	
THREE MONTHS OF FISCAL YEAR, 1911.													
Atchison, Topeka & Santa Fe.	7,547*	14,311,203	\$3,118,625	\$83,110,007	\$415,900	\$6,089,024	\$3,118,625	\$1,149,149	\$13,192,705	\$429,149	\$1,149,149	\$7,716,191	
Atlantic Coast Line	4,492	3,609,750	5,709,753	6,446,588	986,645	4,086,731	159,823	2,029,305	2,029,305	2,029,305	2,029,305	1,041	
Boston & Maine	2,243	6,244,601	5,011,755	1,761,666	1,393,340	151,262	5,029,305	2,029,305	2,029,305	2,029,305	2,029,305	1,041	
Central R.R. Co. of New Jersey	6,673	4,291,267	1,426,982	5,946,715	1,603,049	100,572	1,746,257	1,607,079	1,746,257	1,607,079	1,746,257	1,041	
Chicago & North Western	7,688†	1,053,669	1,514,607	5,768,814	20,739,447	3,357,042	2,112,566	3,403,432	7,621,129	1,834,881	6,537,166	181,873	
Chicago, Burlington & Quincy	9,037*	15,033,669	6,916,639	23,849,677	1,188,444	3,705,768	43,911	7,020,250	54,476,765	16,089,538	7,760,139	218,441	
Chicago, Milwaukee & St. Paul	7,511	11,930,143	4,391,597	17,844,597	2,117,671	2,117,671	1,784,597	1,784,597	1,784,597	1,784,597	1,784,597	1,041	
Chicago, Rock Island & Pacific	7,396	12,203,617	5,598,638	16,762,683	2,873,273	2,928,273	4,326,922	5,972,702	4,326,922	12,043,183	4,739,500	12,203,617	
Cleveland, Cincinnati, Chicago & St. L.	1,082	4,859,024	2,430,560	7,980,363	1,426,588	1,342,153	281,743	3,194,742	83,897	1,784,597	1,784,597	1,041	
Lake Shore & Michigan Southern	2,243	1,761,666	1,393,340	1,761,666	1,393,340	1,342,153	2,029,305	2,029,305	2,029,305	2,029,305	2,029,305	1,041	
Delaware, Lackawanna & Western	1,752	1,072,455	1,072,712	2,229,772	9,186,527	1,253,529	1,253,529	1,253,529	1,253,529	1,253,529	1,253,529	1,041	
Michigan Central	1,752	1,072,455	1,072,712	2,229,772	9,186,527	1,253,529	1,253,529	1,253,529	1,253,529	1,253,529	1,253,529	1,041	
Pennsylvania R.R. Co.	830	633,168	1,041,710	1,074,789	1,074,789	1,074,789	1,074,789	1,074,789	1,074,789	1,074,789	1,074,789	1,041	
Philadelphia & St. Paul	2,553	4,521,912	1,701,912	6,507,755	6,507,755	6,507,755	6,507,755	6,507,755	6,507,755	6,507,755	6,507,755	1,041	
Great Northern	1,952	12,203,617	5,598,638	16,762,683	2,873,273	2,928,273	4,326,922	5,972,702	4,326,922	12,043,183	4,739,500	12,203,617	
Missouri, Kansas & Texas Ry. Co.	1,838	14,127,417	1,846,866	4,326,922	2,873,273	2,928,273	4,326,922	5,972,702	5,972,702	12,043,183	4,739,500	12,203,617	
New York, New Haven & Hartford	2,041	7,606,519	8,283,328	13,616,388	1,041,710	1,230,412	1,246,070	1,041,710	1,230,412	1,246,070	1,246,070	1,041	
Louisville & Nashville	1,951	7,760,011	7,181,204	1,041,710	1,041,710	1,041,710	1,041,710	1,041,710	1,041,710	1,041,710	1,041,710	1,041	
Michigan Central	1,746	12,372,305	5,541,121	19,123,077	2,889,847	3,044,735	2,928,273	2,928,273	2,928,273	2,928,273	2,928,273	1,041	
Pennsylvania Company	3,990	29,185,680	9,349,553	41,013,011	1,701,912	1,701,912	1,701,912	1,701,912	1,701,912	1,701,912	1,701,912	1,041	
Pere Marquette	2,388	1,155,339	1,332,211	4,262,847	515,159	592,514	131,149	1,177,077	617,776	1,121,399	91,973	1,197,095	
New York, New Haven & Hartford	2,041	7,606,519	8,283,328	13,616,388	1,041,710	1,230,							

## Railway Officers,

### ELECTIONS AND APPOINTMENTS.

#### Executive, Financial and Legal Officers.

J. T. Pritchard, assistant treasurer of the New York & Long Branch, has been appointed treasurer, with office at New York.

D. W. McLeod, acting auditor of the Gulf, Colorado & Santa Fe at Galveston, Tex., has been appointed auditor, with office at Galveston.

L. L. Campbell, traveling auditor of the Illinois Traction System, has been appointed auditor of disbursements, with office at Champaign, Ill., succeeding A. A. Price, who was killed in the Staunton wreck.

William Everdell, Jr., assistant secretary of the Hudson & Manhattan, at New York, has been elected secretary, succeeding Charles W. King, and Kenyon B. Conger has been elected assistant secretary, both with offices at New York.

Clayton Snyder, transfer agent of the National Railways of Mexico at New York, has been appointed assistant secretary, with office at New York, succeeding E. E. Bashford, whose appointment as general purchasing agent at Mexico City, Mex., has already been announced.

Maxwell Evarts, who has been appointed general counsel of the Southern Pacific and the Union Pacific, was born November 15, 1862, in New York City. He graduated from Yale University in 1884 and went to the Harvard Law School. For a time he was engaged in law work in the office of W. D. Guthrie and was for a time assistant United States district attorney. He spent some time in the West on a ranch, and his first railway work was as an attorney for the Southern Pacific in 1893. Shortly after this he gave up private practice almost entirely and has been engaged in law work for the Southern Pacific ever since. His most important work for the Southern Pacific has been in connection with appeals to the United States Supreme Court. At present he argues nearly all of the cases that are carried to the supreme court, either jointly with the counsel that has tried the cases in the lower courts or alone. He takes Judge Lovett's place as general counsel, but is not a member of the various executive committees of the Harriman Lines, of which Judge Lovett was a member when he was general counsel. Mr. Evarts is a man who takes life smilingly and who takes a keen interest in his country place in Vermont. A few years ago he served two terms in the Vermont legislature. Mr. Evarts is the son of the late Secretary of State William Maxwell Evarts.

#### Operating Officers.

J. A. Cook has been appointed a supervisor of terminals of the Wabash Railroad, with office at Kansas City, Mo., a new office.

Hugh Steele has been appointed general superintendent of the Chicago River & Indiana, succeeding Dexter L. Phipps, and R. B. Browne has been appointed car accountant, succeeding T. P. Convey, both with offices at Chicago.

Thomas R. T. Orth, assistant to vice-president and general manager of the Wichita Falls Route, at Wichita Falls, Tex., has been appointed superintendent, succeeding J. J. Cotter, resigned, and his former position has been abolished.

A. W. Kelso, superintendent of the Chicago, Rock Island & Pacific at Des Moines, Iowa, has been appointed superintendent, with office at Fairbury, Neb., succeeding C. L. Brown; and Mr. Brown has been transferred to Des Moines as superintendent, succeeding Mr. Kelso.

A. L. Robinson, trainmaster of the Wabash Railroad, in charge of the Sixth, Seventh and Eighth districts at Decatur, Ill., has been appointed trainmaster in charge of the Ninth and Thirteenth districts, with office at Decatur, succeeding A. F. Helm, promoted. C. E. Ochiltree, chief despatcher at Decatur, succeeds Mr. Robinson, and W. F. Shepherd succeeds Mr. Ochiltree.

H. P. Reigart, assistant general manager of the Virginian Railway, at Norfolk, Va., who resigned from that position on November 7, to go into other business, will perform special work for the company until December 31, 1910, on which date the position of assistant general manager will be abolished. All correspondence heretofore addressed to him should in future be sent

to Raymond Du Puy, vice-president and general manager, Norfolk.

#### Traffic Officers.

J. H. Lynch has been appointed a contracting freight agent of the Canadian Pacific, with office at Portland, Ore.

R. G. Trelford has been appointed a traveling passenger agent of the Missouri Pacific, with office at Dallas, Tex.

R. G. Cook has been appointed assistant general eastern freight agent of the Erie Railroad, with office at New York, succeeding J. D. Abrams, resigned.

Griswold Wilson has been appointed a traveling freight agent of the Chicago, Burlington & Quincy, with office at Cleveland, Ohio, succeeding W. S. Dewey.

J. H. McKennon, traveling passenger agent of the Canadian Northern, at Winnipeg, Man., has been transferred to Toronto, Ont., succeeding Osborne Scott.

T. H. Simmons has been appointed a commercial agent of the Chicago, Rock Island & Pacific, with office at Cedar Rapids, Iowa, succeeding W. S. Williams.

J. L. Lashley has been appointed a traveling freight agent of the Georgia, Southern & Florida, with office at Cordele, Ga., succeeding T. E. Harris, resigned.

Richard De Treville has been appointed a traveling passenger agent of the Louisville & Nashville, with office at Evansville, Ind., succeeding June Stone, resigned.

M. G. Murphy has been appointed general traveling passenger agent of the Canadian Pacific, reporting to the passenger traffic manager, with office at Montreal, Quebec.

Fred J. Kemper has been appointed traveling freight agent of the Missouri Pacific, with office at Cincinnati, Ohio, succeeding A. G. Bush, resigned to engage in other business.

J. C. Reister, traveling freight agent of the San Antonio & Aransas Pass at San Antonio, Tex., has been appointed general agent in the freight department, with office at San Antonio.

H. C. Cantwell has been appointed a traveling passenger agent of the Illinois Central and the Yazoo & Mississippi Valley, with office at Memphis, Tenn., succeeding Walter Byrnes, promoted.

O. L. Winslow, traveling freight agent of the Missouri, Kansas & Texas at Chicago, has been appointed a commercial agent, with office at Detroit, Mich. T. J. Clark succeeds Mr. Winslow.

John L. Hohl has been appointed a traveling freight and passenger agent of the Denver & Rio Grande, with office at St. Louis, Mo., succeeding J. H. Harper, resigned to accept service elsewhere.

Harry O. Hartzell, assistant chief clerk in the freight traffic department of the Baltimore & Ohio, at Baltimore, Md., has been appointed industrial agent, with office at Pittsburgh, Pa., succeeding G. W. Dudderar, resigned.

T. Franks, commercial agent of the Missouri, Kansas & Texas at Waco, Tex., has been appointed a commercial agent, with office at Austin, Tex. W. D. Morgan, traveling freight agent at Houston, Tex., succeeds Mr. Franks.

A. T. Benjamin, whose resignation as superintendent of the Saratoga and Champlain divisions of the Delaware & Hudson has been announced in these columns, has been appointed freight agent of the Delaware & Hudson at Troy, N. Y.

Frederick Sobatta, freight solicitor of the Union Line, Pennsylvania System at St. Louis, Mo., has been appointed a traveling freight solicitor at Dallas, Tex., succeeding George H. Fyler, promoted. Francis P. Gross succeeds Mr. Sobatta.

H. C. Yutzy, traveling freight agent of the Minneapolis & St. Louis at Minneapolis, Minn., has been appointed a commercial agent, with office at Minneapolis, succeeding M. J. Hannam, resigned to accept service with another company.

R. H. Dozier, soliciting freight agent of the Seaboard Air Line, at Tampa, Fla., has been appointed a commercial agent, with office at Jacksonville, succeeding E. B. Freeman, resigned to go to another company. L. Barwick succeeds Mr. Dozier.

M. J. Hannam, commercial agent of the Minneapolis & St. Louis and the Iowa Central at Minneapolis, Minn., has been appointed a commercial agent of the St. Paul & Des Moines, with office at Minneapolis, succeeding F. B. Stubbs, resigned to engage in other business.

J. F. Hartsough, general agent of the Louisville & Nashville

at Chicago, has been appointed division freight agent, with office at Atlanta, Ga., succeeding J. A. Ridgely, promoted. F. S. Griffin, general agent at Detroit, Mich., succeeds Mr. Hartsough, and J. H. Fitch succeeds Mr. Griffin.

George Clark Wells, whose appointment as assistant to passenger traffic manager of the Canadian Pacific, with office at Montreal, Que., has been announced in these columns, was born April 15, 1866, at Brockville, Ont. Mr. Wells was educated in the public and high schools of his native town. He began railway work March 6, 1882, on the Grand Trunk, and until May, 1892, was in the passenger department. He then went to the Canadian Pacific and was in the passenger department of that road at Montreal as rate clerk for three years. In June, 1895, he was appointed chief rate clerk, and three years later he was made chief clerk in the passenger traffic department. He was appointed assistant general passenger agent of the eastern lines in November, 1904, which position he held at the time of his recent appointment as assistant to passenger traffic manager.

Charles Edward McPherson, whose appointment as assistant passenger traffic manager of the western lines of the Canadian Pacific, with office at Winnipeg, Man., has been announced in these columns, was born June 7, 1862, at Chatham, Ont. He began railway work with the Grand Trunk in May 1876, as a ticket clerk at Toronto. He was later made traveling passenger agent, and in 1881 was appointed assistant general agent in Canada of the Chicago, Rock Island & Pacific. Five years later he was made general traveling agent of the Canadian Pacific and in 1887 was appointed district passenger agent. He was promoted to assistant general passenger agent at St. John, N. B., in 1891, and in 1895 was transferred with the same title to Toronto, Ont., where he remained four years. From July, 1899, until the date of his recent appointment he was general passenger agent of the western lines at Winnipeg.

#### Engineering and Rolling Stock Officers.

Rudolph Ellzey has been appointed master mechanic of the Kentwood & Eastern, with office at Kentwood, La., succeeding John May, resigned.

C. R. Dobson has been appointed a general foreman in the car department of the Rock Island Lines, with office at Cedar Rapids, Iowa, succeeding C. Setzekorn, resigned.

G. H. Watkins has been appointed an assistant master mechanic of the Pennsylvania Railroad, New Jersey division, at Meadows, N. J., succeeding Edwin Schenck, Jr., promoted.

G. M. Gray, mechanical engineer of the Bessemer & Lake Erie at Greenville, Pa., has been appointed superintendent of motive power, with office at Greenville, succeeding E. B. Gilbert, who has been appointed special agent of the motive power department.

H. C. May, master mechanic of the Louisville & Nashville at South Louisville, Ky., has been appointed superintendent of motive power of the Chicago, Indianapolis & Louisville, with office at Lafayette, Ind., succeeding O. S. Jackson. The appointment of Mr. Jackson as superintendent of motive power was announced in these columns on October 14.

#### Purchasing Officers.

J. F. Farrell, purchasing agent of the Michigan Central, the Detroit & Charlevoix and the Toledo Terminal, at Detroit, Mich., has been appointed general tie agent of the Michigan Central and other New York Central Lines west of Buffalo, N.

Y., with office at Detroit, succeeding W. F. Goltra, resigned. Mr. Farrell will continue also his duties as purchasing agent of the Michigan Central. R. A. Bury has been appointed assistant general tie agent of these companies, with office at Detroit.

George F. Wilder has been appointed purchasing agent of the Chicago, Milwaukee & Puget Sound, with office at Seattle, Wash., succeeding D. F. Buckingham.

#### OBITUARY.

A. G. Robinson, formerly general agent in the passenger department of the Chicago & Alton at Chicago, died at Chicago on October 30.

Alexander D. Joslin, auditor of passenger receipts of the Illinois Central, with office at Chicago, died at Chicago on November 4. Mr. Joslin was born May 13, 1848, at Norwalk, Ohio. He received a high school education and began railway work in 1864 as a clerk in the Norwalk shops of the Lake Shore & Michigan Southern. Two years later he went with the Illinois Central as junior clerk and was later made bookkeeper. Since 1874 he has been in the accounting department in charge of passenger accounts, first with the title of chief passenger clerk. He was later appointed to ticket auditor and then to auditor of passenger receipts.

William C. Ennis, for many years in the mechanical department of the New Jersey Midland, the New York, Susquehanna & Western, the Central New England and other roads, died at his home in Paterson, N. J., October 29, at the age of 65. Mr. Ennis began his life work as an apprentice in the Danforth Locomotive Works, and he was master mechanic on the two roads first above named for 25 years. When the Susquehanna passed into the control of the Erie he went to the Central New England. For a number of years past he had been with the American Locomotive Company, and had also done technical work for the New Jersey State Railroad Commission. He was an honorary member of the American Railway Master Mechanics' Association. Mr. Ennis is survived by Mrs. Ennis and one daughter and by five sons. All of the sons are engaged in engineering, namely: Prof. William D., head of the department of Mechanical Engineering in the Polytechnic Institute of Brooklyn; Joseph B., chief designing engineer of the American Locomotive Co.; J. E., in the sales department of the same; Herbert, in the engineering department of the American Car & Foundry Co., and Roy C., a student of engineering in the Polytechnic Institute of Brooklyn.

Sir Clifton Robinson, of England, managing director and engineer of the London United Electric Tramways, and a director of a number of other railway lines, died November 6 in New York. Sir Clifton was born at Birkenhead, near Liverpool, England, January 1, 1848. He came to America in 1866 and was engaged in street railway construction for about five years, when he returned to England. He was then engaged in engineering work, constructing street car lines in Cork, Ireland. He was appointed general manager of the Bristol Tramways, and was later manager of the tramways of Edinburgh, Scotland. In 1884 he started work on the Highgate cable tramways. He then returned to America to carry out the work of building a system of electric lines at Los Angeles, Cal., and later designed and constructed the London United Electric Tramways System. In 1895 he constructed the first electric tramway at Bristol, England. He also built and reorganized the Dublin Southern District Electric Tramways in 1896, and the Middlesbrough, Stockton & Thornaby Electric Tramways in 1898; and in 1902 he took part in the construction of the great tube railway system of London. In 1906 he designed and put into operation a system of through booking between tramways and railways in London. Three years later he was engaged by the American Street Railway Association to report on the general situation with regard to street railways in the United States. He took charge of the work of changing the cable lines to electric lines in the city of Bristol in 1891, and was also active in the work of converting street car lines in other cities for the use of electricity. In 1904 he was made managing director of the United Tramways Company of London, which was converted into an electric system. He was the author of several treatises on tramways, for one of which, the "World's Tramways," he received the silver medal of the Society of Arts in 1902.



C. E. McPherson.

## Railway Construction.

### New Incorporations, Surveys, Etc.

**ARKANSAS, OKLAHOMA & TEXAS.**—Incorporated in Arkansas, to build from a point in Sebastian county, Ark., southeast to the Chicago, Rock Island & Pacific, about 5.5 miles. The incorporators include: H. Denman, C. H. Finley, J. F. Read, S. T. Moore and A. Johnson.

**ARKANSAS, OKLAHOMA & WESTERN.**—This company is said to be making plans to build an extension from Rogers, Ark.

**ATCHISON, TOPEKA & SANTA FE.**—The Pecos & Northern Texas, Plainview branch, of the Lubbock district, has been extended from Lubbock, Tex., south to Lamesa, 70 miles.

This company is relaying the tracks between Los Angeles, Cal., and Barstow, 141 miles. The company is also building a new freight yard at Barstow, and is cutting down the Barstow hill to allow easy entrance into the city.

**ATLANTIC COAST LINE.**—This company has plans made for laying 85-lb. rail between Waycross, Ga., and Albany.

**BUFFALO, ROCHESTER & EASTERN.**—The New York Public Service Commission, Second district, will resume the consideration, on November 30 and December 1 and 2, of the application of the B. R. & E. for permission to build from Buffalo, N. Y., east to Troy. A decision is not looked for until January, 1911. (Sept. 2, p. 439.)

**CALIFORNIA ROADS.**—Seth Hartley, Escondido, Cal., is back of a project to build a line from San Bernardino, Cal., south via Escondido, to San Diego, about 100 miles. The promoters expect to have the line in operation in about one year.

**CHESAPEAKE & OHIO.**—The Paint Creek branch of the Huntington division has been extended from Mahan, W. Va., to Keeferon, five miles.

**CHICAGO, BURLINGTON & QUINCY.**—The report of this company for the year ended June 30, 1910, shows that work on the line from Herrin, Ill., south to Metropolis, 57 miles, is about finished. Since the close of the year this line has been put in operation. Work is under way on extensions as follows: Kirby, Wyo., southeast to Powder creek, 104 miles; Lincoln, Neb., west to Milford, 18 miles; Scribner, Mont., northwest to Fromberg, 25 miles, and from Hudson, Colo., northwest to Greeley, 26 miles. New second-tracks were constructed in Illinois and Nebraska, and numerous side and passing tracks have been laid at various places. Additional land has been secured just outside the city of Chicago for yard facilities and land for additional terminal facilities at Denver has also been bought. Large additions have been made to the shops at Havelock, Neb., and improvements have been made to terminal facilities at Lincoln. (See report of this company elsewhere in these columns.)

**CHICAGO, MEMPHIS & GULF.**—Contracts are said to be let to C. T. Bondurant, Hickman, Ky., and to W. L. Mozley, Memphis, Tenn., for grading work on 10 miles, from Hickman southwest towards Tiptonville, Tenn. The work is to be finished by January, 1911. (Feb. 4, p. 280.)

**CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.**—The Kennedy line of the Wisconsin division has been extended from Kennedy, Wis., north to Kaiser, five miles.

**CHICKASHA TERMINAL.**—See Oklahoma Central.

**ERIE RAILROAD.**—An officer writes that a contract has been given to the Ferguson & Edmondson Co., Brookville, Pa., for second-track work between Ashland, Ohio, and Nankin, about four miles. It is expected to have the improvements finished by January, 1911.

**GALLATIN VALLEY.**—This road now extends from Bozeman, Mont., west via Bozeman Hot Springs, to Three Forks, 38.3 miles, with a branch from Bozeman Hot Springs to Salesville, 4.7 miles.

**GEORGIA & FLORIDA.**—A contract is said to have been given to J. F. Lamb, Thomasville, Ga., to build 1.5 miles of line through the city of Valdosta, Ga.

**HUDSON & MANHATTAN.**—Regular train service has been started on the extension of the subway to 33d street, in the borough of Manhattan, New York City.

**MESABA ELECTRIC.**—Incorporation has been asked for in Minnesota, with \$50,000 capital, to build from Virginia, Minn., west to Hibbing, and eventually to Gilbert. The incorporators include: O. Mitchell, A. C. Gillette, W. D. Bailey, J. A. Sinclair, F. M. Emanuelson, C. M. Van Norman and E. E. Hewitt, all of Duluth.

**METHOW VALLEY & WASHINGTON NORTHERN.**—Organized in the state of Washington, with \$1,000,000 capital, to build a line from Spokane, Wash., west through the Methow valley to Puget Sound. E. W. Rollins, S. P. Valentine, J. C. Platter, C. G. Andrews and H. W. Henry are incorporators.

**MIDLAND VALLEY.**—This company, it is said, is ready to start work on an extension of the Glenpool branch to Sapulpa, Okla., 10 miles.

**MINIDOKA & SOUTHWESTERN.**—See Oregon Short Line.

**MISSOURI-OSAGE.**—Incorporated in Missouri with \$250,000 capital, to build from Linn, Osage county, Mo., west to Wardsville, Cole county, 25 miles. The directors include: H. C. Avis, A. K. Prince, P. Nelson, A. Dur, all of St. Louis, and M. A. Greding, Alton, Ill.

**MISSOURI RIVER & NORTHERN.**—This company has filed with the State Railway Commission of South Dakota a plat of its survey recently completed from Chamberlain, S. Dak., northeast to Huron. The organization and surveys have been carried out by a local company. It is understood that the project is backed by the Great Northern.

**NEVADA-CALIFORNIA-OREGON.**—An officer writes that work is now under way by the Hall Construction Co., Los Angeles, Cal., and Richardson & Nugent, on an extension of this road. The work is being carried out from Alturas north to Lakeview, Ore., 50 miles. Contracts are to be let at once for about 20 miles of heavy work, and contracts for an additional 20 miles will be let soon. The line will carry live stock and lumber. (July 15, p. 1143.)

**NEVADA COPPER BELT.**—An officer writes that work is now under way by P. J. Conway, Bridgeport, Cal., building an extension of this road. The company now operates a line from Wabuska, Nev., east to Mason, 14 miles, and is building an extension south and west, in all 38 miles. Maximum grades will be 1.5 per cent. The line will carry copper, ore, mine supplies and farm products. (July 22, p. 174.)

**NEW ORLEANS, MOBILE & CHICAGO.**—This company has under consideration the question of building an extension, it is said, from Beaumont, Miss., southwest to New Orleans, La.

**NEW YORK, CHICAGO & ST. LOUIS.**—According to press reports, this company is planning to make improvements near Conneaut, Ohio. The plans call for putting in six new storage tracks. A new roundhouse may also be built.

**NEW YORK, NEW HAVEN & HARTFORD.**—An officer writes that a contract has been given to C. W. Blakeslee & Son, New Haven, Conn., for 20 miles of double-tracking work between Shelton, Conn., and Hawleyville.

**NORTH LOUISIANA & GULF.**—This company will build an 11-mile extension west, it is said, to a connection with the Louisiana & Northwestern.

**NORTHWESTERN RAILROAD.**—See Oregon Short Line.

**NUECES RIVER VALLEY.**—According to press reports, contracts have been let for building the first section of 60 miles, from Beeville, Tex.; the work is to be started by December 1. The plans call for a line from Beeville, west via Clarksville, Simmons City, Tilden, Cotulla and Carrizo Springs to Eagle Pass. W. A. Frisby, president, and G. A. Hull, consulting engineer, Beeville. (October 14, page 711.)

**OKLAHOMA CENTRAL.**—An officer of the Chickasha Terminal Railway, which was organized to build a terminal system around Chickasha, Okla., 4.8 miles, to include a station to cost \$25,000,

writes that a contract has been let to C. L. King, and work is now under way. Grading and bridge work is finished, and track is laid on three miles. There are two steel bridges, each 160 ft. long. Charles F. Raney, engineer, Chickasha. (Dec. 10, p. 1167.)

**OREGON SHORT LINE.**—A new branch of the Minidoka & Southwestern has been opened for business from Twin Falls, Idaho, west to Rogerson, 28.8 miles.

A new line, called the Northwestern Railroad, has been opened for business from Blakes Junction, Ore., near Blakes, north to Homestead, 57.9 miles.

**PECOS & NORTHERN TEXAS.**—See Atchison, Topeka & Santa Fe.

**ROCK ISLAND SOUTHERN.**—An officer writes that a right-of-way is being secured from Monmouth, Ill., south to Macomb, for building an extension to the latter place. It is proposed to eventually extend the line south to St. Louis.

**ST. FRANCOIS COUNTY (ELECTRIC).**—This company was recently organized in Missouri with \$250,000 capital. An officer writes that the projected route is from De Lassus, Mo., north via Farmington and Esther to Flat river, about 15 miles. W. M. Horlan, Farmington, may be addressed.

**ST. LOUIS, BROWNSVILLE & MEXICO.**—A new branch, called the Collegeport branch, has been opened for business from Buckeye, Tex., southwest to Collegeport, 16 miles. (Sept. 23, p. 559.)

**ST. MARYS & KINGSLAND.**—This company has amended its charter, it is said, to build from St. Marys, Ga., via Waycross, to Adel or Sparks, about 150 miles.

**SEABOARD AIR LINE.**—The Dunnellon branch is now in operation between Archer, Fla., and Dunnellon, 40.8 miles. The line formerly in operation from Keysville Junction, via Edeson, Ga., to Nichols, has been extended to Mulberry, 4.2 miles, and trains are now being operated from Edeson Junction, which is 0.2 miles from Edeson, via Bradley Junction to Agricola, 12.1 miles.

**STEARNS COAL & LUMBER CO. LINES.**—An officer is quoted as saying that the company proposes to extend this line some 20 or 30 miles into coal and timber lands along the south fork of the Cumberland river in Kentucky and Tennessee. J. S. Stearns, president, Ludington, Mich.

**SUMTER & CHOCTAW.**—A contract is said to have been given to M. N. Sikes, Livingston, Ala., for building an extension from Edna, Ala., south to Rohjohn, about five miles.

**UNION PACIFIC.**—The Topeka branch, heretofore in operation between Menoken, Kan., and Onaga, has been extended from Onaga to Carden, and is now open for traffic.

**VIRGINIAN RAILWAY.**—A contract has been given to Carpenter & Boxley, Roanoke, Va., it is said, for grading and putting in the masonry for viaducts between Cirtsville, W. Va., and Harper. The improvements now being carried out include a revision of line and grade on this section.

**WICHITA FALLS & NORTHWESTERN.**—The Panhandle division has been extended from Hollis, Okla., west to Wellington, 21 miles.

**WISCONSIN & NORTHERN.**—An officer writes regarding the report that the company will build about five miles of line through the Menominee-Indian reservation in Wisconsin, that the line will probably be built next spring. (Oct. 21, p. 760.)

#### Argentine Railway Notes.

The railway from Apostoles to Posadas, in the Territory of Misiones, was opened on August 16.

The new rapid service between Buenos Aires and Rosario was inaugurated on September 1. It requires but five hours for the journey.

The San Juan-Serreuela railway was opened on August 7; the Central Northern railway is also planning to extend its line from La Banda to Santiago del Estero.

Work is being pushed on the line from Bahia Blanca to Carmen de Patagones. The extreme southern part of the Province of Buenos Aires appears to be developing rapidly.

Of the railway from Puerto Deseado to Nahuel Huapi, 40 miles were completed on August 22. Puerto Deseado has now over 1,000 people. A large schoolhouse is soon to be erected there, and other establishments are planned to meet the growing needs of this Patagonian center.

## Railway Financial News.

**ATLANTIC, QUEBEC & WESTERN.**—A cable despatch says that the Charing Cross Bank of England, which closed October 17, had advanced the Atlantic, Quebec & Western £1,500,000, the value of the claim being doubtful.

**CHICAGO & SOUTHEASTERN.**—See Southern Indiana.

**CHICAGO SOUTHERN.**—See Southern Indiana.

**CURA RAILROAD.**—The New York Stock Exchange has listed \$600,000 conditional first mortgage 5 per cent. bonds of 1902-1952. The proceeds of the sale of these bonds is being used chiefly to pay for construction work on the Marti-San Luis-Dayamo-Manzanillo extension.

**LORAIN, ASHLAND & SOUTHERN.**—The Industrial Railroad Company of Lorain, Ohio, and The Lorain & Ashland Railroad Company have been consolidated under the name The Lorain, Ashland & Southern Railroad Company. Articles of consolidation have been filed with the Secretary of State. The capital stock is to be \$250,000.

**MISSOURI, KANSAS & TEXAS.**—A majority of the Texas Railroad Commissioners having disproved of the proposed five-year lease of the Texas Central by the M. K. & T., the application has been withdrawn.

**NEVADA COUNTY NARROW GAGE.**—This company has declared a dividend of 2½ per cent. The company operates a three-foot gage road running from Colfax, Cal., to Nevada City, 22 miles. The San Francisco News Bureau says that this is the first dividend declared for some time, owing to the expenses entered into by the company in building the new cut-off between Grass Valley and Colfax.

**NEW YORK CENTRAL & HUDSON RIVER.**—The New York Public Service Commission, Second district, has authorized the Dunkirk, Allegheny Valley & Pittsburgh and the New York Central & Hudson River to modify the terms of a lease of the D. A. V. & P. to the New York Central. Under the modified lease the New York Central agrees to pay rental, in addition to 1½ per cent. per annum on \$1,300,000 of the stock, the interest on such bonds as may from time to time at the request of the New York Central be issued to refund its bonded indebtedness and for other corporate purposes. The commission has also authorized the Dunkirk, Allegheny Valley & Pittsburgh to make a mortgage to secure its 4½ per cent. 50-year first mortgage bonds to an amount not exceeding \$5,000,000. The company is authorized at the present time to issue bonds at par to the amount of \$2,900,000 to refund (a) first mortgage bonds of the Dunkirk, Warren & Pittsburgh, \$1,000,000; (b) second mortgage bonds of the Dunkirk, Warren & Pittsburgh, \$400,000; (c) third mortgage bonds of the Dunkirk, Warren & Pittsburgh, \$200,000; (d) first mortgage bonds of the Warren & Venango \$1,000,000; (e) second mortgage bonds of the Warren & Venango, \$300,000.

**NORTHERN CENTRAL.**—Minority stockholders, acting with the waters' committee, have begun a suit for the accounting of the sale by the Northern Central in 1894 of \$500,000 stock of the Union Railroad to the Philadelphia, Baltimore & Washington at par.

**RUTLAND RAILROAD.**—The minority stockholders' committee, William C. Taylor, secretary, New York, has issued a notice that the committee is about to bring suit for the benefit of all stockholders depositing their securities with the committee against certain of the former directors, and will also endeavor to enforce the New York Central to give proper recognition of the rights of the Rutland in traffic arrangement between the New York Central and the Rutland.

**SOUTHERN INDIANA.**—The road was sold under foreclosure at Terre Haute on November 3, for \$1,263,333. Representatives of the reorganization committee bought the property, and a new company, the Chicago & Southeastern, is being formed to take over the property of the Southern Indiana and also the Chicago Southern, which was sold on November 4 at Danville, Ill. The price at which the Chicago Southern was sold was \$1,000,000.

## Supply Trade Section.

Kenneth Seaver has been appointed chief engineer of the Harbison-Walker Refractories Company, Pittsburgh, Pa.

The O. M. Edwards Company, Syracuse, N. Y., advises that its New York office has been removed to the New York Life building, room 1232, 346 Broadway.

The Buffalo Brake Beam Company, New York, announces the removal of its St. Louis offices from the Lincoln Trust building to suite 1443, Syndicate Trust building.

W. H. Dooley has been appointed superintendent of the Gadsden Car Works, Cincinnati, Ohio, succeeding J. P. McCuen, who retired at his own request because of poor health.

The Chicago Steel Car Company, Chicago, has recently received orders for an aggregate of 2,500 underframes, including 1,000 steel underframes for beef cars to be built by Swift & Company, Chicago.

The McKeen Motor Car Company, Omaha, Neb., shipped a 70-ft. motor car for the Rock Island Lines to Waurika, Okla., on October 31. This makes the ninetieth McKeen motor car in service in this country and Mexico.

The Duff Manufacturing Company, Pittsburgh, Pa., has purchased the plant of William Forgie, Washington, Pa., including the business and all rights and privileges of making the oil well jacks originated by William Forgie. Most of the machinery has been transferred to the Duff factory.

The Forsyth Brothers Co., Chicago, has acquired 23 acres at Harvey, Ill., on which it has started to put up a plant. The property is located near several trunk lines from which switches will be run to the plant. It is expected that at least one building, with new machinery, will be ready for occupancy before the first of the coming year.

J. S. Coffin, vice-president of the American Brake Shoe & Foundry Company, will, on December 31 next, retire from active official service with that company in order to devote himself more closely to the affairs of the Franklin Railway Supply Company, of which he is president, and the American Arch Company, of which he is chairman, as well as the Locomotive Superheater Company and other allied interests. Mr. Coffin will, however, retain his financial interest in the American Brake Shoe & Foundry Company, and also his membership on the board of directors.

The opening of the new works of the Jones & Laughlin Steel Company of Pittsburgh, Pa., at Aliquippa, Pa., a few miles down the Ohio river from Pittsburgh, marks the entrance of that company into several new fields of production, including tin plate and wire products. The wire plant, which started in operation a few days ago, is running full time on an extensive line of new J. & L. products. These include wire nails, barbed wire, fence staples and various brands of fence wire, as well as special grades of basic and bessemer wire for screw stock, bolts, rivets and nails. The plant is of the latest design and the most modern appliances and processes have been installed. The rod mill has been in operation to its full capacity for several weeks rolling the ordinary grades, together with high carbon, screw stock, bolts, rivets and rods. The new J. & L. tinplate mill at Aliquippa, which started some weeks ago, is also busy. The sales head of the wire department is George A. Mason, personally known throughout the trade because of his long service with another company. Associated with him in the sales department are Thomas C. Ham and George E. Quigley, men of experience in the wire business.

### TRADE PUBLICATIONS.

*Clark Blow-off System.*—The advantages of this system are considered in a catalogue issued by the Horace L. Winslow Co., Old Colony building, Chicago, Ill.

*Denver & Rio Grande.*—“Fertile Lands of Colorado” is the title of a booklet which aims to acquaint the public with the agricultural resources of Colorado and New Mexico.

*Lake Shore & Michigan Southern.*—The latest time-table of the Lake Shore & Michigan Southern includes, in addition to the usual information, a drawing of the new Grand Central station in New York with some facts about it.

*Steam Power Stations.*—A partial list of the steam power stations, illustrated by both drawings and half-tone illustrations, designed and built by the Stone & Webster Engineering Corporation, Boston, Mass., is given in an attractive booklet published by that company.

*Locomotive for Passenger Service.*—Record No. 67 from the Baldwin Locomotive Works, Philadelphia, Pa., presents illustrated descriptions of a number of locomotives recently built by that company for passenger service, including American, Atlantic, 10-wheel and Pacific types.

*Composite Telephone and Telegraph System.*—Bulletin T-206, just issued by the Western Electric Company, New York, describes its composite telephone and telegraph system for railway service, which has been devised for the purpose of transmitting messages simultaneously over grounded telegraph lines.

*Terminal Improvements of the Pennsylvania and Long Island Railroads.*—The work done by Westinghouse, Church, Kerr & Co., of New York, in connection with the New York terminal and improvements of the Pennsylvania and Long Island Railroads is considered at length in a 61-page, 6x9 in., illustrated publication issued by Westinghouse, Church, Kerr & Co.

*Wire Nails and Wire Products.*—The Jones & Laughlin Steel Company, Pittsburgh, Pa., has issued its first catalogue on wire nails and wire products. It is an attractively illustrated booklet of 32 pages and contains much detailed information about the various brands of wire nails, wire rods, barbed wire, staples, annealed wire, galvanized wire and other wire products now being manufactured in the new Aliquippa works.

### RAILWAY STRUCTURES.

**BALTIMORE, Md.**—An officer of the Pennsylvania Railroad writes regarding the reports that a new passenger station is to be built in Baltimore, that a report has been made by Isham Randolph to the Board of Estimate, recommending the construction of a new downtown station at the corner of North and Saratoga streets, and the building of a tunnel under Lexington street, from the Baltimore & Potomac tracks, in the western suburbs, to the proposed new station. No other action than the presentation of the report has been taken.

**BOYLES, ALA.**—An officer of the Louisville & Nashville writes that a contract has been given to the Monarch Construction Co., St. Louis, Mo., for building a power house at Boyles, near Birmingham. The steel work for this building has been let to the Louisville Bridge & Iron Co. Additional work is being carried out by the company's men on new shop buildings. (Jan. 21, p. 167.)

**CHICKASHA, OKLA.**—See Oklahoma Central under Railway Construction.

**CHICO, CAL.**—The roundhouse and other buildings of the Butte County Railroad at Chico were destroyed by fire on October 19.

**COLUMBUS, OHIO.**—The Baltimore & Ohio is considering plans for the construction and equipment of modern shops, probably at some point northwest of the Ohio river. Columbus, Ohio, is mentioned as the place where these shops may be located, and this seems likely, since the company's extensive Mount Clare

shops at Baltimore take care of equipment operating on the eastern end of the system, leaving that portion northwest of the Ohio river without strictly modern shops, except at New Castle Junction, Pa., and those are somewhat limited in their capacity. The proposed extension of shop facilities is made necessary by the increased amount of equipment in service, and in all probability by the desire to centralize repairs for the lines west of Pittsburg as well.

COBOURG, ONT.—The Canadian Northern Ontario has given a contract to Martin Jex & Co., Cobourg, it is said, for putting up a station in Cobourg.

DEL RIO, TEX.—The Kansas City, Mexico & Orient has announced the location of its new passenger station and roundhouse.

FLUSHING, N. Y.—An officer of the Long Island Railroad writes that no decision has yet been reached by the New York Public Service Commission, First district, on the application of the Long Island for the elimination of nine grade crossings on the Northside division, through the village of Flushing, from Flushing creek, easterly to and including the highway known as Broadway, immediately west of the Broadway-Flushing station. The scheme involves raising the railway tracks between Flushing creek and Main street, Flushing, and depressing the tracks easterly from that place to a point about half way between Murray Hill and Broadway station. The elimination of the grade crossings at Broadway and 22d street is to be effected by a partial depression of the railway and a partial elevation of the two streets in question. If the work is ordered by the Public Service Commission it will cost about \$1,000,000 to make the improvements.

HARPER, W. VA.—See Virginian Railway under Railway Construction.

JOPLIN, Mo.—A contract was given in June to the Manhattan Construction Co., of New York and Joplin, Mo., for putting up the union terminal station to be used and built jointly by the railways entering Joplin. The building will be two stories high, 100 ft. x 300 ft., and located at the corner of Main street and Broadway. The building, which is to be of reinforced concrete fireproof construction, finished inside with enameled terra cotta, marble and oak trim, is to cost about \$100,000. It is expected to have the building ready for business April 1, 1911. (March 17, p. 660.)

LONG BEACH, CAL.—The Pacific Electric will build a new station at Long Beach.

MARYSVILLE, CAL.—The Northern Electric will build a combined freight and passenger station at Marysville.

MILLERTON, OKLA.—The state commission has ordered the St. Louis & San Francisco to build a new passenger station.

MONTRÉAL, QUE.—According to press reports, the first step was taken recently by the Grand Trunk to provide Montreal with a large passenger terminal to replace the present Bonaventure station. Work was started recently demolishing the buildings on a portion of the property which is to be used as a site for the new terminal. The company has secured all the property between the present station and Cathedral street to the east and bounded by Chabolle square and St. James street. It is thought that the Intercolonial Railway will join in the scheme for the new terminal.

An officer of the Canadian Pacific writes that work is now under way by C. E. Deakin, Montreal, on a stone exterior fireproof passenger station at Windsor street. The structure is to be 15 stories high, 70 ft. x 430 ft., and will cost about \$2,000,000. (Aug. 12, p. 297.)

OAKDALE, CAL.—The Northern Electric will build a steel bridge over Little Chico creek, to replace the present wooden structure.

PENSACOLA, FLA.—An officer of the Louisville & Nashville writes that the company is not at present making plans for the proposed passenger station, to cost about \$200,000, at Pensacola. The improvements are simply contemplated and it may be some time before the work will be carried out. (May 27, p. 1328.)

RIVERSIDE, CAL.—The Atchison, Topeka & Santa Fe Coast Lines is putting up a new freight house at Riverside.

SACRAMENTO, CAL.—The Southern Pacific has appropriated \$400,000 for building a new passenger station at Sacramento. Construction work is to be started next year.

ST. LOUIS, Mo.—The new Mississippi river bridge of the Illinois Traction System was dedicated November 10.

SPRINGFIELD, OHIO.—The Cleveland, Cincinnati, Chicago & St. Louis is considering building new car shops.

STILL RIVER, MASS.—An officer of the Boston & Maine writes that contracts have been given to the New England Construction Co., Springfield, for the foundations, and to the American Bridge Co. for the steel superstructure of a bridge. The plans call for a riveted through truss bridge, 127 ft. 6 in. long, to be built over the Still river.

TIA JUANA, MEX.—The San Diego & Arizona has given contracts to C. W. Corbaley, Los Angeles, Cal., for the bridge over the Tia Juana river, to be 500 ft. long, and another bridge over the Matanuca creek, to be 180 ft. long.

TOPEKA, KAN.—The Atchison, Topeka & Santa Fe is preparing plans for a new passenger station on the north side at the Santa Fe junction.

TUCSON, ARIZ.—Residents of Tucson have offered the El Paso & Southwestern a right-of-way and station property in Tucson, valued at \$150,000, to induce the company to extend to that place.

WAUSAUKEE, WIS.—Work has been started by the Chicago, Milwaukee & St. Paul on a new passenger station at Wausauke.

#### FOREIGN RAILWAY NOTES.

An indication of the interest taken by the Central government in the future of railways in China is afforded by the establishment in September, 1909, in connection with the Ministry of Communications at Peking, of a school for training railway officers. The school is built for 600 students, but the number is at present limited to 350, who come from all parts of the empire and vary in age from 18 to 25. There are about 30 teachers, including one British, one American, two French and two Germans. Most of the teachers are returned Chinese students from abroad, and they are well paid. The full course is three years and the students are divided into three sections according to the foreign language, English, French or German, taught them in addition to other subjects. The curriculum includes Chinese language, drill, geography, history of Chinese railways, mathematics, drawing, chemistry, physics, ethics of commerce, traffic management, railway bookkeeping, elements of engineering, steam and electricity, workshop administration and railway company law.

The most important railway construction in course of development with reference to South Italy is that which will connect Rome and Naples by an express route. This line was to have originally been completed in 1923-24 at a cost of about \$25,000,000. With a view, however, to materially benefit Naples, the government has determined to accelerate the work and bring about its completion within a period of five years, and to connect the new station of the express line at Naples with the present central station and make it available to the public within four years. This new quick route to Rome lies as follows: First section Rome to Fiume Amaseno, 47.8 miles; second section, Fiume Amaseno to Formia, 26 miles; third section, Formia to Minturno, 7.4 miles; fourth section, Minturno to Naples, 41.6 miles; besides the urban section connecting the Fuorigrotta station with the central Naples. Most of the first section is now in the hands of the contractors. In this section there are two big tunnels, that of the Orso and Vivola. The first should be completed about the end of 1911 and the latter in March, 1913. The whole line will be double track. The section Formia-Minturno is over the present line Sparanise-Gaeta, and will only require the laying down of a second pair of rails, the line for which is practically ready.

## Late News.

The items in this column were received after the classified departments were closed.

F. E. Marsh, assistant master mechanic of the Pennsylvania Railroad, at Meadows, N. J., has been appointed assistant master mechanic at the Altoona, Pa., shops.

The New York, New Haven & Hartford will apply to the Vermont Legislature for permission to build the 10-mile line for the Boston & Maine from South Vernon, Vt., to Brattleboro. (April 15, p. 1014.)

Bids will be asked for in 30 or 60 days by the Iowa Traction Co., recently incorporated in New Jersey with \$2,000,000 capital, to build an electric line from Oskaloosa, Iowa, via Barnes City, Montezuma and Malcom to Tama, 65 miles. There will be four steel bridges on the line. George E. Woodhouse, president, Oskaloosa.

The 600 miles of the Pacific Electric Railway, together with the power plants, cars and other equipment, has formally passed into the control of the Southern Pacific. The transaction precedes the retirement of H. E. Huntington, who began in 1900 the development of what is now the largest system of interurban railways in this country. This gives the Southern Pacific control of nearly all of the interurban lines centering in Los Angeles, approximately 700 miles.

A leading manufacturer of steel rails estimates that rail orders during the last half of this month and December will aggregate a total of more than 500,000 tons. He bases his opinion on the belief that the Pennsylvania, Harriman and New York Central Lines will distribute their orders within the period mentioned. The Pennsylvania, according to reports, may contract for approximately 120,000 tons. Nearly all orders will be contingent upon an increased tonnage should the railways desire to enlarge their original contracts.

About 50 railway officers went to Urbana, Ill., November 7, in a special train provided by Vice-President Park, of the Illinois Central, and were shown over the University of Illinois. The trip was made to see the work being done for the benefit of railways by the university. A meeting in the afternoon was addressed by President James, Deans, Goss and Kinley, Professors Schmit and Stoek telling of university railway work. D. C. Buell read a paper describing the educational work of the Union Pacific. President Delano, of the Wabash, also gave a talk. On motion of W. L. Park, seconded by Vice-President Ashton, of the Chicago & North Western, a resolution was adopted pledging the support of the Illinois railways to the university in its effort to get the Illinois legislature to make adequate appropriation for enlarging the university's railway work. Almost all railways in Illinois were represented by one or more officers designated by their presidents. The trip was organized by Mr. Delano.

A strike vote among the engineers on 61 railways west, south and north of Chicago is expected to follow the breaking off of wage negotiations between the railways and the officers of the Brotherhood of Locomotive Engineers. These have been in progress since September 26. Warren S. Stone, president of the Brotherhood, said he believed that the vote will favor a strike unanimously. The result of the poll will be known by December 10. Immediately after, he said, a final opportunity would be given the railways to meet the engineers, and if their demands were still ignored, every engine west of Chicago in every branch of service would stop running within five hours. Engineers' demands approximated 27 per cent. increase. This was finally reduced to 17 per cent. The railways were willing to grant 10 per cent., amounting to an increase in the pay rolls of the 61 roads of \$3,840,000 annually. The \$6,528,000 increase demanded, the railways' representatives asserted, could not be conceded. Warren S. Stone has announced that he would not consent to mediation or arbitration on any of the points involved.

(See editorial comment on the western railway situation elsewhere in this issue.)

## Equipment and Supplies.

### LOCOMOTIVE BUILDING.

The Detroit, Toledo & Ironton has ordered 12 consolidation locomotives from the American Locomotive Company. They will weigh 219,000 lbs. in working order and will have 22 x 30-in. cylinders and 57-in. drivers.

The New York, Ontario & Western has ordered six consolidation locomotives from the American Locomotive Company. They will weigh 202,000 lbs. in working order and will have 21 x 32-in. cylinders and 55-in. driving wheels.

The Richmond, Fredericksburg & Potomac has ordered four Pacific type locomotives from the American Locomotive Company. They will weigh 235,000 lbs. in working order and will have 22 x 28-in. cylinders and 73-in. driving wheels.

### CAR BUILDING.

The Solvay Process Company is said to have ordered a number of 50-ton tank cars from the Pressed Steel Car Company.

The Jamison Coal & Coke Company, Oliver building, Pittsburgh, Pa., is in the market for 400 fifty-ton steel hopper cars.

The Merchants Despatch Transportation Company is reported in the market for 1,000 refrigerator cars. This item is not confirmed.

The Pittsburgh, Shawmut & Northern is said to be in the market for 2,300 coal cars and 500 box cars. This item is not confirmed.

The Pennsylvania Railroad is said to have placed an order with its Juniata shops for the building of 500 steel underframe box cars. This item is not confirmed.

The Long Island has ordered 50 motor cars, 30 steel passenger coaches, 10 steel parlor cars, 5 combination passenger and baggage cars and 5 combination mail and baggage cars for 1911 delivery.

### IRON AND STEEL.

The Erie is said to have contracted for 30,000 tons of steel.

The Virginian is in the market for 2,000 tons of bridge steel for viaducts.

The Norfolk & Western has ordered 15,000 tons of steel from the United States Steel Corporation.

The Philadelphia & Reading has ordered 2,000 tons of bridge steel from the American Bridge Company.

The Oregon Trunk Line has placed an order for 1,700 tons of bridge steel from the American Bridge Company.

The Chicago, Milwaukee & St. Paul has ordered 125 tons of rods for Howe truss bridges from the American Bridge Company.

The Florida East Coast has ordered 7,000 tons of fabricated steel, to be used in the construction of spans to connect the Florida Keys, from the American Bridge Company.

*General Conditions in Steel.*—Steel business thus far this month has been light, but it is expected that it will improve now that the election is over. The rail makers have adopted the method of quoting prices per pound instead of per ton on both standard and light sections. In the case of standard sections this does not make any change in price, as they are quoted at 1 1/4c. per pound, which figures \$28 per gross ton at mill, the same price that has been in effect for some years.

The projected railway from Caiman to Paseo de los Indios, in the Chubut, will probably not be begun until 1911. Meanwhile the wool industry of this territory is rapidly developing, and it is stated that representatives of United States mining companies are to investigate the mineral possibilities of this little-known part of South America.

## ANNUAL REPORT

## CHICAGO, BURLINGTON &amp; QUINCY RAILROAD COMPANY—FIFTY-SIXTH ANNUAL REPORT.

Chicago, July 1, 1910.

To the Stockholders of the Chicago, Burlington & Quincy Railroad Co.: Departing from the practice of previous years, there has been omitted at the beginning of this report the consolidated Income Account for all roads operated and controlled. In lieu thereof separate Income Accounts are given of the Colorado & Southern Lines and of the Q. O. & K. C. R.R.

## OPERATING REVENUES.

	Years ended June 30,	
	1910.	1909.
Freight revenue	\$58,224,537.48	\$52,240,920.60
Passenger revenue	22,380,305.83	19,585,305.02
Mail revenue	2,380,215.66	2,814,566.25
Express revenue	2,216,049.24	2,026,990.25
Miscellaneous transportation revenue	1,803,949.06	1,675,211.92
Revenue from operations other than transportation	812,440.69	682,504.12
Joint facilities	102,019.28	87,131.20
Total operating revenue	\$87,869,517.24	\$78,612,629.36

## OPERATING EXPENSES.

Maintenance of way and structures	\$15,725,461.20	\$12,986,773.27
Maintenance of equipment	15,057,165.39	13,366,415.08
Traffic expenses	1,654,451.73	1,576,860.88
Transportation expenses	28,340,051.74	24,554,729.67
General expenses	2,283,834.82	2,076,718.92
Total operating expenses	\$63,010,964.88	\$54,560,997.77
Net operating revenue	\$24,858,552.36	\$24,051,631.59
Net deficit from outside operations	164,282.15	158,406.71
Total net revenue	\$24,694,270.21	\$23,893,224.88
Taxes accrued	2,970,736.78	2,517,017.52
Operating income	\$21,723,533.43	\$21,376,207.36

## OTHER INCOME.

Rents	\$745,786.35	\$653,749.44
Miscellaneous interest	1,777,907.46	290,097.11
Total other income	\$2,523,693.81	\$943,846.55
Gross corporate income	\$24,247,227.34	\$22,320,058.91

## DEDUCTIONS FROM GROSS CORPORATE INCOME.

Rents	\$1,764,512.90	\$1,807,790.05
Miscellaneous interest	1,077.95	89,847.53
Interest accrued on funded debt	8,506,015.82	7,875,507.16
Sinking funds	666,874.39	675,828.56
Total deductions	\$10,998,481.06	\$9,948,973.80
Net corporate income	\$13,308,746.18	\$12,371,080.61
Dividends	\$8,867,128.00	\$8,867,128.00
Appropriations for betterments	3,329,006.47	2,237,080.86
	\$12,196,134.47	\$11,104,208.86
Balance	\$1,112,611.71	\$1,266,871.75

Charges to Capital Account aggregating \$5,658,186.92 were made during the fiscal year for additions to the property. Of this amount \$595,822.25 was expended for the line from Herrin to Metropolis, Ill., which is practically completed and will be opened for traffic before the close of the calendar year. Extensions are in progress from Kirby, Wyo., to Powder River, Wyo., upon which \$2,091,258.25 has been expended so far; from Lincoln, Neb., to Milford, Neb., expended to date, \$76,354.95; from Scribner, Mont., to Fromberg, Mont., expended to date, \$85,058.68, and from Hudson, Colo., to Greeley, Colo., expended to date, \$7,409.60.

New second tracks, where urgently needed, have been constructed in Illinois and Nebraska, and numerous side and passing tracks have been laid at different points on the system.

Additional land has been procured just outside the city of Chicago for needed yard facilities, and land for additional terminal facilities at Denver has also been purchased.

Large additions have been made to shops at Havelock, Neb., and improvements have been made in terminal facilities at Lincoln, Neb.

The following statistical tables have been compiled in the form required for the annual reports of carriers to the Interstate Commerce Commission:

## CAPITALIZATION.

## CAPITAL STOCK.

	No. of shares.	Total par value authorized and outstanding.	Dividends declared during the year.
	1,108,391	\$110,889,100.00	Rate. 8% Amount. \$8,867,128.00

## FUNDED DEBT.

## Total par value.

Designation of bond.	Authorized.	Outstanding.	In treasury, in sinking funds, or pledged as collateral.	In hands of public.	Interest accrued during year.
Mortgage	\$209,435,000	\$190,368,800	\$22,638,600	\$167,730,200	\$7,613,700.62
Collateral trust	7,968,000	7,310,200	4,406,500	2,908,700	292,743.98
Plain or debenture	16,647,000	12,177,000	2,457,000	9,720,000	599,571.22
Total	\$234,050,000	\$209,856,000	\$29,502,100	\$180,853,900	\$8,506,015.82

## EXPENDITURES FOR NEW LINES AND EXTENSIONS AND EQUIPMENT, AND FOR ADDITIONS AND BETTERMENTS, DURING THE YEAR.

## ACCOUNT.

## I.—ROAD.

	New lines and extensions.	Additions and betterments.
	From current funds.	From current funds.
Engineering	\$143,890.33	Charged to road and equipment.
Right of way and station grounds	332,449.43	\$80,987.61
Real estate		1,053,208.84
Grading	2,096,161.77	Cr. 65,400.98
Tunnels	82,670.22	367,258.97
Bridges, trestles and culverts	305,689.70	488,764.85
Ties	42,678.10	.....
Rails	42,765.28	.....
Frogs and switches	6,078.37	654,600.53
Track fastenings and other material	34,672.31	Cr. 457.94
Ballast	15,775.46	405,945.23
Track laying and surfacing	37,036.32	22,908.88
Roadway tools	12.68	882,925.54
Fencing right of way	7,944.21	16,130.47
Crossings and signs	8,709.42	95,557.61
Interlocking and other signal apparatus	122.58	37,036.32
Telegraph and telephone lines	5,901.52	49,401.74
Station buildings and fixtures	1,308.34	17,582.10
Shops, engine houses and turn tables	3,618.45	12,826.38
Shop machinery and tools	598.90	101,475.93
Water stations	4.62	80,669.21
Fuel stations		38,759.32
Grain elevators		1,352.59
Storage warehouses		70.07
Dock and wharf property		7,098.51
Electric light plants		25.88
Gas producing plants	3.80	.....
Miscellaneous structures	569.17	27,586.36
Transportation of men and material	8,040.26	30,010.15
Injuries to persons	178.75	8,040.26
Total	\$3,177,869.99	\$3,090,926.75

## II.—EQUIPMENT.

Steam locomotives		\$29,452.62
Passenger train cars		132,228.70
Freight train cars		11,725.25
Work equipment		Cr. 946,414.75

## Total

III.—GENERAL EXPENDITURES.	\$111,896.34	\$184,455.90
Law expenses	\$408.87	\$59.50
Other expenditures	10,961.61	65,495.98
Total	\$11,365.48	\$65,989.30

## Grand total

Grand total	\$3,189,285.47	\$2,468,951.46
		\$3,329,006.47

\$8,987,193.40

## TRAFFIC STATISTICS.

ITEM.	1910		1909		Increase or decrease	
	Dollars and whole numbers.	Cents and decimals.	Dollars and whole numbers.	Cents and decimals.	Dollars and whole numbers.	Cents and decimals.
<b>PASSENGER TRAFFIC.</b>						
Number of passengers carried earning revenue.....	21,512,255	.....	20,227,505	.....	Inc.	1,284,750
Number of passengers carried one mile.....	1,189,871,613	.....	1,056,225,686	.....	Inc.	133,645,927
Number of passengers carried one mile, per mile of road.....	131,870	.....	117,058	.....	Inc.	14,812
Average distance carried, miles.....	55	31	52	22	Inc.	3 09
Total passenger revenue.....	\$22,380,305	88	\$19,585,305	02	Inc.	\$2,795,000
Average amount received from each passenger.....	\$1	04035	.....	96825	Inc.	.....
Average receipts per passenger per mile.....	.....	01881	.....	01854	Inc.	00027
Total passenger service train revenue.....	\$27,566,795	71	\$24,548,772	99	Inc.	\$3,018,022
Passenger service train revenue per mile of road.....	\$3,055	15	\$2,720	66	Inc.	834
Passenger service train revenue per train mile.....	\$1	51100	\$1	44743	Inc.	06366
<b>FREIGHT TRAFFIC.</b>						
Number of tons carried of freight earning revenue.....	27,867,618	.....	25,055,767	.....	Inc.	2,811,851
Number of tons carried one mile.....	7,435,144,216	.....	6,620,646,367	.....	Inc.	814,497,849
Number of tons carried one mile, per mile of road.....	824,016	.....	738,745	.....	Inc.	90,271
Average distance haul of one ton, miles.....	266	80	264	24	Inc.	2 56
Total freight revenue.....	\$58,224,537	48	\$52,240,920	60	Inc.	\$5,983,616
Average amount received for each ton of freight.....	\$2	08933	\$2	08490	Inc.	.....
Average receipts per ton, per mile.....	.....	00783	.....	00789	Dec.	00006
Freight revenue per mile of road.....	\$6,452	86	\$5,789	69	Inc.	663
Freight revenue per train mile.....	\$2	98566	\$8	05718	Dec.	07147
ITEM.	Dollars and whole numbers.	Cents and decimals.	Dollars and whole numbers.	Cents and decimals.	Dollars and whole numbers.	Cents and decimals.
<b>TOTAL TRAFFIC.</b>						
Operating revenues .....	\$87,869,517	24	\$78,612,629	36	Inc.	\$9,256,687
Operating revenues per mile of road.....	\$9,738	33	\$8,712	39	Inc.	\$1,025
Operating revenues per train mile.....	\$2	88445	\$2	39716	Dec.	.....
Operating expenses .....	\$63,010,964	88	\$54,560,997	77	Inc.	\$8,449,967
Operating expenses per mile of road.....	\$6,983	33	\$6,046	82	Inc.	\$936
Operating expenses per train mile.....	\$1	70988	\$1	66875	Inc.	.....
Net operating revenue.....	\$24,858,552	36	\$24,051,681	59	Inc.	\$806,920
Net operating revenue per mile of road.....	\$2,755	00	\$2,665	57	Inc.	\$89
Average number of passengers per car mile.....	16	.....	17	.....	Dec.	1
Average number of passengers per train mile.....	65	.....	62	.....	Inc.	3
Average number of passenger cars per train mile.....	6	02	5	65	Inc.	.....
Average number of tons of freight per loaded car mile.....	16	99	17	08	Dec.	.....
Average number of tons of freight per train mile.....	381	26	387	44	Dec.	6 18
Average number of freight cars per train mile.....	32	66	33	09	Dec.	.....
Average number of loaded cars per train mile.....	22	44	22	69	Dec.	.....
Average number of empty cars per train mile.....	9	28	9	48	Dec.	.....
Average mileage operated during year.....	9,023	06	9,023	09	Dec.	03

## MILEAGE STATISTICS.

ITEM.	1910.		1909.		Increase or decrease.
	Miles.	Miles.	Miles.	Miles.	
<b>Locomotive Mileage—Revenue Service.</b>					
Freight locomotive miles.....	20,664,263	17,533,620	Inc.	3,130,643	
Passenger locomotive miles.....	17,882,270	16,079,035	Inc.	1,803,235	
Mixed locomotive miles.....	912,212	1,270,028	Dec.	357,816	
Special locomotive miles.....	14,372	10,604	Inc.	3,768	
Switching locomotive miles.....	9,858,473	8,162,678	Inc.	1,695,795	
Total revenue locomotive mileage...	49,831,590	43,055,965	Inc.	6,275,625	
Non-revenue service locomotive miles.	2,379,048	1,848,330	Inc.	529,718	
<b>Car Mileage—Revenue Service.</b>					
Freight car miles:					
Loaded .....	437,559,610	387,679,481	Inc.	49,880,129	
Empty .....	180,914,529	162,025,877	Inc.	18,888,652	
Cabooses .....	18,518,939	15,821,177	Inc.	2,697,762	
Total freight car miles.....	636,993,078	565,526,535	Inc.	71,466,543	
Passenger car miles:					
Passenger .....	46,949,693	41,837,410	Inc.	5,112,283	
Sleeping, parlor and observation.....	25,683,230	21,510,726	Inc.	4,172,504	
Other passenger train cars.....	37,103,965	32,429,171	Inc.	4,674,794	
Total passenger car miles.....	109,736,888	95,777,307	Inc.	13,959,581	
Special car miles:					
Freight, loaded .....	157,000	131,454	Inc.	25,546	
Freight, empty .....	.....	48 Dec.	48		
Cabooses .....	13,443	8,496	Inc.	4,947	
Passenger .....	49,119	40,845	Inc.	8,774	
Sleeping, parlor and observation.....	658	8,901	Dec.	8,248	
Other passenger train cars.....	2,571	1,172	Inc.	1,399	
Total special car miles.....	222,786	185,411	Inc.	37,375	
Total revenue car mileage.....	746,052,752	661,489,253	Inc.	85,463,499	
Non-revenue service car miles.....	17,209,298	18,070,575	Inc.	4,188,723	
<b>Train Mileage—Revenue Service.</b>					
Freight train miles.....	18,595,294	15,823,841	Inc.	2,771,453	
Passenger train miles.....	17,336,810	15,695,928	Inc.	1,640,882	
Mixed train miles.....	906,073	1,264,375	Dec.	358,302	
Special train miles.....	12,907	9,912	Inc.	2,995	
Total revenue train mileage.....	36,851,084	32,794,056	Inc.	4,057,028	
Non-revenue service train miles.....	1,788,271	1,414,590	Inc.	373,681	

## EQUIPMENT.

ITEMS.	No. on June 30, 1909.		No. added during year.		No. on June 30, 1910.	Average capacity all freight cars.
	No.	No.	No.	No.		
Locomotives—Owned:						
Passenger .....	416	50	...	466	.....	
Freight .....	919	...	62	857	.....	
Switching .....	388	12	...	350	.....	
Total locomotives .....	1,673	62	62	1,673	24,286 lbs.	
Cars owned—Passenger service:						
First-class cars .....	630	...	5	625	.....	
Combination cars .....	225	3	...	228	.....	
Dining cars .....	28	4	...	32	.....	
Parlor cars .....	7	4	...	11	.....	
Baggage, express and postal cars .....	227	...	...	227	.....	
Other cars in passenger service.	42	...	6	36	.....	
Total .....	1,159	11	11	1,159	.....	
Freight service:						
Box cars .....	26,297	...	229	26,068	.....	
Flat cars .....	1,268	...	18	1,250	.....	
Stock cars .....	6,991	...	7	6,984	.....	
Coal cars .....	14,077	...	316	13,761	.....	
Tank cars .....	6	...	6	6	.....	
Refrigerator cars .....	1,512	200	...	1,712	.....	
Other cars in freight service.	100	...	...	100	.....	
Total .....	50,251	200	570	49,881	33.56 tons	
Company's service:						
Officers' and pay cars.....	31	...	...	31	.....	
Gravel cars .....	488	...	5	483	.....	
Derrick cars .....	33	2	...	35	.....	
Cabooses .....	648	18	...	666	.....	
Other road cars.....	3,297	557	...	3,854	.....	
Total .....	4,497	577	5	5,069	.....	
Total cars owned.....	55,907	788	586	56,109	.....	

## GENERAL BALANCE SHEET.

JUNE 30, 1910.

## ASSETS.

## Property Investment—Road and Equipment:

Road	\$319,827,652.06
Equipment	53,873,553.17
General Expenditures	1,454,542.37
Reserve for Accrued Depreciation—Credit	9,965,231.84
Total	\$364,690,516.76

## Securities:

Securities of Proprietary, Affiliated and Controlled Companies, Pledged— Stocks	19,344,014.38
Securities Issued or Assumed, Pledged— Funded Debt	31,000.00
Securities of Proprietary, Affiliated and Controlled Companies, Unpledged— Stocks	7,503,624.44
Funded Debt	722,050.00
Total	\$ 27,600,688.82

## Other Investments:

Advances to Proprietary, Affiliated and Controlled Companies for Construction, Equipment and Betterments	401,845.46
Miscellaneous Investments— Physical Property	1,482,513.21
Securities Unpledged	1,321,134.03
Total	\$ 3,205,492.70

## Working Assets:

Cash	9,103,246.56
Securities Issued or Assumed, Held in Treasury— Funded Debt	13,058,700.00
Marketable Securities— Stocks	747,572.12
Funded Debt	47,543.75
Loans and Bills Receivable	2,037,300.85
Net Balance Due from Agents and Conductors	2,114,516.85
Miscellaneous Accounts Receivable	4,453,959.68
Materials and Supplies	8,969,701.53
Other Working Assets	26,641.59
Total	\$ 40,559,182.93

## Deferred Debit Items—

Advances— Temporary Advances to Proprietary, Affiliated and Controlled Companies	612,763.10
Working Funds	275,575.91
Other Advances	31,172.46
Insurance Paid in Advance	919,511.47
Cash and Securities in Sinking Funds	134,924.08
Securities in Provident Funds	16,263,637.43
Other Deferred Debit Items	496,538.89
Total	7,530,523.99
Grand Total	\$ 25,345,185.86

## MILEAGE.

## MILEAGE OF ROAD OPERATED.

State.	Line owned—			Operated Total line under lease, operated	Total line operated
	Main line,	Branches	Total.		
Illinois	356.25	1,278.48	1,634.73	43.31	1,678.04
Iowa	274.55	1,090.43	1,364.98	73.47	1,438.45
Wisconsin	222.57	222.57	445.14	.58	223.10
Minnesota	23.61	23.61	47.22	14.84	38.45
Missouri	1,121.62	1,121.62	2,121.62	11.63	1,133.25
Kansas	259.32	259.32	518.64	.82	260.14
Nebraska	191.61	2,659.17	2,850.78	22.37	2,873.15
South Dakota	283.37	283.37	566.74	....	283.37
Wyoming	482.77	482.77	482.77	....	482.77
Montana	187.28	187.28	187.28	12.62	199.90
Colorado	394.38	394.38	394.38	34.97	429.35
	822.41	8,003.00	8,825.41	214.56	9,039.97

State.	Line owned—				Total.
	Single Track.	Second Track.	Third Track.	Yard and Sidings.	
Illinois	1,634.73	220.06	23.55	828.12	2,706.46
Iowa	1,364.98	244.53	....	316.63	1,926.14
Wisconsin	222.57	8.70	....	69.40	300.67
Minnesota	23.61	2.25	....	29.08	54.94
Missouri	1,121.62	100.69	....	412.51	1,634.82
Kansas	259.32	100.69	....	23.34	282.66
Nebraska	2,850.78	5.40	....	638.21	3,494.39
South Dakota	283.37	....	....	64.56	347.93
Wyoming	482.77	....	....	136.75	619.52
Montana	187.28	....	....	34.64	221.92
Colorado	394.38	....	....	119.87	513.75
	8,825.41	581.63	28.55	2,672.61	12,103.20

Following is the report of the General Auditor, with statements prepared by him.

By order of the Board of Directors.

DARIUS MILLER,  
President.

## LIABILITIES.

Capital Stock:	
Common Stock	\$110,839,100.00

## Mortgage, Bonded and Secured Debt:

## Funded Debt—

## Mortgage Bonds—

Held by Company	\$ 12,978,000.00
Not Held by Company	177,390,800.00

190,368,800.00

## Collateral Trust Bonds—

Held by Company	54,700.00
Not Held by Company	7,255,500.00

7,310,200.00

## Plain Bonds—

Held by Company	26,000.00
Not Held by Company	12,151,000.00

12,177,000.00

## Total

\$209,856,000.00

## Working Liabilities—

Traffic and Car-service Balances due to Other Companies	746,291.58
Audited Vouchers and Wages Unpaid	8,426,378.40
Miscellaneous Accounts Payable	588,970.22
Matured Interest and Dividends Unpaid	2,168,762.50
Matured Mortgage, Bonded and Secured Debt Unpaid	11,100.00
Other Working Liabilities	57,430.09

\$11,998,932.79

## Accrued Liabilities Not Due—

Unmatured Interest and Sinking Fund Payments	1,518,398.28
Taxes Accrued	72,000.00
Total	\$ 1,590,398.28

## Deferred Credit Items—

Operating Reserves	791,674.82
Liability on Account of Provident Funds	496,538.89
Other Deferred Credit Items	188,339.20
Total	\$ 1,476,552.91

## Appropriated Surplus—

Addition to Property Since June 30, 1907, through Income	8,752,501.94
Reserves from Income or Surplus— Invested in Sinking Funds	28,230,587.39

Not Specifically Invested	4,569,567.18
Total	\$ 41,552,656.51

## Profit and Loss—

Income Account	41,785,373.25
Profit and Loss	42,302,008.33

Total	\$ 84,087,376.58
Grand Total	\$461,401,017.07

## INCOME ACCOUNT.

## OPERATING INCOME.

## RAIL OPERATIONS—

## Operating Revenues:

Revenue from Transportation:	
Freight	\$58,224,537.48
Passenger	22,380,305.83
Excess Baggage	320,068.24
Mail	2,230,215.66
Express	2,216,049.24
Milk	311,241.22
Other Passenger Train	8,915.52
Switching	1,157,011.90
Special Service Train	32,062.02
Miscellaneous Transportation	74,650.16

\$86,955,057.27

Revenue from Operations other than Transportation:	
Station and Train Privileges	6,238.59
Parcel Room Receipts	6,907.50
Storage Freight	44,116.56
Storage Baggage	20,650.60
Car Service	295,149.16
Telegraph and Telephone Service	202,503.37
Rent of Buildings and Other Property	99,367.19
Miscellaneous	187,507.12

\$12,440.69

Joint Facilities Dr.	12,388.15
Joint Facilities Cr.	114,407.43
Total Operating Revenues	\$87,869,517.24

Operating Expenses:	
Maintenance of Way and Structures	\$15,725,461.20
Maintenance of Equipment	15,057,165.39
Traffic Expenses	1,654,451.73
Transportation Expenses	28,340,051.74
General Expenses	2,233,834.82
Net Operating Revenue	\$24,858,552.36
OUTSIDE OPERATIONS.	
Revenue	780,482.24
Expenses	944,764.39
Net Deficit from Outside Operations	164,282.15
Total Net Revenue	\$24,694,270.21
TAXES ACCRUED	2,970,736.78
Operating Income	\$21,723,533.43
OTHER INCOME.	
Rents Accrued from Lease of Other Roads	2,844.12
Other Rents—Credits:	
Joint Facilities	617,481.27
Miscellaneous Rents	125,460.96
Dividends Received on Stocks Owned or Controlled	698,578.00
Interest Received on Funded Debt Owned or Controlled	289,232.03
Interest on Other Securities, Loans and Accounts	790,097.43
Gross General Income	\$24,247,227.24

DEDUCTIONS FROM GROSS CORPORATE INCOME.			
Rents Accrued for Lease of Other Roads	25,275.56		
Other Rents—Debits:			
Hire of Equipment—Balance	910,767.38		
Joint Facilities	803,103.53		
Miscellaneous Rents	25,366.43	1,739,237.34	
Interest Accrued on Funded Debt	8,506,015.82		
Other Interest	1,077.95		
Sinking Funds Chargeable to Income	666,874.39	10,938,481.06	
Net Corporate Income.			\$13,308,746.18

DISPOSITION OF NET CORPORATE INCOME.			
Dividends Declared on Stock:			
2 per cent, payable October 1, 1909	2,216,782.00		
2 per cent, payable January 1, 1910	2,216,782.00		
2 per cent, payable April 1, 1910	2,216,782.00		
2 per cent, payable July 1, 1910	2,216,782.00	8,867,128.00	
Appropriations for Betterments:			
Expended during the year..	3,329,006.47	12,196,134.47	
Balance for year ..			\$ 1,112,611.71

## FUNDED DEBT OF THE CHICAGO, BURLINGTON &amp; QUINCY RAILROAD COMPANY.

Designation of Bond or Obligation	Term—		Total Par Value	Total Par Value Authorized	Total Par Value Held by Company			Total Par Value not Pledged	Total Par Value Held by Company	Interest		
	Date of Issue.	Date of Maturity.			In Treasury.	as Collateral.	In Sinking Funds.			Rate.	When Payable.	Amount Accr'd d'r'g the Year.
<b>MORTGAGE BONDS.</b>												
C. B. & Q. R. R.:												
General Mortgage	1908	1958	\$53,680,000	\$53,680,000	\$12,198,000	.....	.....	\$41,482,000	4	M. & S.	\$1,920,469.95	
Illinois Division	1899	1949	50,835,000	50,835,000	384,000	.....	.....	50,451,000	3½	J. & J.	1,779,225.00	
Illinois Division	1899	1949	34,165,000	34,165,000	189,000	.....	.....	33,976,000	4	J. & J.	1,366,600.00	
Iowa Division Mortgage Sinking Fund Bonds	1879	1919	3,000,000	2,277,000	.....	.....	.....	2,277,000	5	A. & O.	113,850.00	
Iowa Division Mortgage Sinking Fund Bonds	1879	1919	12,502,000	6,098,000	21,000	.....	.....	6,077,000	4	A. & O.	246,388.18	
Nebraska Extension Mortgage Sinking Fund Bonds	1887	1927	29,441,000	23,134,000	125,000	\$31,000	.....	22,978,000	4	M. & M.	935,743.32	
B. & M. R. R. R. in Nebraska:												
Consolidated Mortgage Sinking Fund Bonds	1878	1918	13,751,000	13,613,000	61,000	.....	\$8,983,800	4,568,200	6	J. & J.	816,885.00	
Republican Valley R. R.:												
Mortgage Sinking Fund Bonds	1879	1919	2,643,000	932,800	.....	.....	645,800	287,000	6	J. & J.	56,004.00	
Hannibal & St. Joseph R. R.:												
Mortgage Bonds	1881	1911	8,000,000	5,551,000	.....	.....	.....	5,551,000	6	M. & S.	359,057.67	
Tarkio Valley R. R.:												
Mortgage Bonds	1880	1920	430,000	38,000	.....	.....	.....	38,000	7	J. & D.	3,365.84	
Nodaway Valley R. R.:												
Mortgage Bonds	1880	1920	388,000	45,000	.....	.....	.....	45,000	7	J. & D.	3,791.66	
Lincoln & Northwestern R. R.:												
Mortgage Bonds	1880	1910	600,000	.....	.....	.....	.....	.....	7	J. & J.	12,320.00	
<b>COLLATERAL TRUST BONDS.</b>												
C. B. & Q.:												
Sinking Fund Bonds (Denver Extension)	1881	1922	7,968,000	7,310,200	54,700	.....	4,351,800	2,903,700	4	F. & A.	292,743.98	
<b>PLAIN BONDS.</b>												
C. B. & Q.:												
Sinking Fund Bonds	1881	1921	4,300,000	3,667,000	26,000	.....	2,431,000	1,210,000	4	M. & S.	146,730.23	
Plain Bonds	1883	1913	9,000,000	8,510,000	.....	.....	.....	8,510,000	5	M. & M.	438,075.54	
B. & M. R. R. R. in Nebraska:												
Sinking Fund Bonds	1880	1910	3,347,000	.....	.....	.....	.....	.....	4	J. & J.	14,765.45	
Total			\$234,050,000	\$209,856,000	\$13,058,700	\$31,000	\$16,412,400	\$180,353,900	.....	.....	\$8,506,015.82	

COLORADO & SOUTHERN LINES.  
 COMBINED INCOME ACCOUNT FIGURES OF COMPANIES COM-  
 PRISING THE "COLORADO & SOUTHERN LINES."  
 YEARS ENDED JUNE 30.

1910	OPERATING REVENUES.	1909
\$12,040,828.39	Freight Revenue.....	\$10,600,748.01
3,918,092.98	Passenger Revenue.....	3,756,694.54
170,391.82	Mail Revenue.....	169,460.84
324,657.66	Express Revenue.....	266,644.76
249,187.27	Miscellaneous Transportation Revenue.	218,829.73
72,652.85	Revenue from Operations other than	
2,169.76	Transportation .....	67,787.27
	Joint Facilities .....	252.02
\$16,777,980.73	Total Operating Revenue.....	\$15,080,412.17

## OPERATING EXPENSES.

\$2,188,644.76	Maintenance of Way and Structures.	\$2,162,560.10
2,521,272.66	Maintenance of Equipment.....	2,447,906.42
274,271.16	Traffic Expenses.....	277,663.79
5,378,794.21	Transportation Expenses.....	4,811,851.02
500,472.19	General Expenses .....	525,706.28
\$10,863,454.98	Total Operating Expenses.....	\$10,225,687.61
\$5,914,525.75	Net Operating Revenue.....	\$4,854,724.56
22,823.59	Net Deficit from Outside Operations..	7,134.90
\$5,892,202.16	Total Net Revenue.....	\$4,847,589.66
477,869.64	Taxes Accrued .....	393,906.76
\$5,414,332.52	Operating Income .....	\$4,453,682.90

## OTHER INCOME.

\$41,582.18	Rents .....	\$21,893.32
605,054.65	Miscellaneous Interest .....	685,698.62
\$646,638.83	Total other Income.....	\$707,591.94
\$6,060,969.35	Gross Corporate Income.....	\$5,161,274.84

DEDUCTIONS FROM GROSS COR-  
PORATE INCOME.

\$390,258.35	Rents .....	\$226,559.66
22,985.78	Miscellaneous Interest .....	59,391.89
2,661,033.74	Interest Accrued on Funded Debt..	2,638,620.74
35,058.19	Sinking Funds .....	87,843.38
\$3,109,336.06	Total Deductions .....	\$2,962,415.67
\$2,951,633.29	Net Corporate Income .....	\$2,198,859.17
\$1,300,000.00	Dividends .....	\$1,300,000.00
\$1,651,633.29	Balance .....	\$898,859.17

The Colorado & Southern Railway Company owns a beneficial interest in one-half of the total Capital Stock of The Colorado Midland Railway Company, and also owns one-half of the Capital Stock of The Trinity & Brazos Valley Railway Company. The results of the operations of those properties for the years ended June 30 are:

1910	1909
The Colo. Midland Ry. Co.	
\$132,293.19 (Deficit) .....	(Deficit) \$47,086.74
The Trinity & Brazos Val. Ry. Co.	
933,436.01 (Deficit) .....	(Deficit) 902,028.85
\$1,065,729.20 (Deficit).....	Total (Deficit) \$949,110.59
Deducting one-half of this deficit from the surplus of the Colorado & Southern Lines, the result is:	
Colorado & Southern System	
\$1,118,768.69 (Surplus) .....	(Surplus) \$424,303.88

QUINCY, OMAHA & KANSAS CITY R. R. CO.  
 INCOME ACCOUNT, YEARS ENDED JUNE 30.

1910	OPERATING REVENUES.	1909
\$570,103.68	Freight Revenue .....	\$527,842.88
236,062.94	Passenger Revenue .....	211,846.82
26,375.60	Mail Revenue .....	26,460.96
24,182.86	Express Revenue .....	19,656.08
6,585.81	Miscellaneous Transportation Revenue.	7,647.38
Revenue from Operations other than		
Transportation .....		8,273.92
8,757.17	Total Operating Revenue.....	\$801,728.04

## OPERATING EXPENSES.

\$316,641.65	Maintenance of Way and Structures..	\$216,441.11
165,211.21	Maintenance of Equipment.....	143,850.72
17,342.66	Traffic Expenses .....	18,635.55
387,807.68	Transportation Expenses .....	372,286.32
34,337.90	General Expenses .....	35,547.93
\$921,341.10	Total Operating Expenses.....	\$786,761.63

\$49,273.04	(Deficit) Net Operating Revenue(Surplus)	\$14,966.41
36,128.85	Taxes Accrued .....	29,910.32
\$85,401.89	(Deficit) Operating Income...(Deficit)	\$14,943.91

## OTHER INCOME.

\$77,797.09	Rents .....	\$22,308.29
1,286.19	Miscellaneous Interest .....	1,244.79
\$79,083.28	Total other Income.....	\$23,553.08
\$6,318.61	(Deficit) Gross Corporate Income(Surplus)	\$8,609.17

DEDUCTIONS FROM GROSS COR-  
PORATE INCOME.

\$44,941.36	Rents .....	\$41,554.12
\$51,259.97	(Deficit) Net Corporate Income. (Deficit)	\$32,944.95
\$35,504.92	Appropriations for Betterments....	\$31,735.17
\$86,764.89	(Deficit) Balance .....	\$64,680.12